

Sportsman Pilot™



Summer



1983



Sportsman Pilot



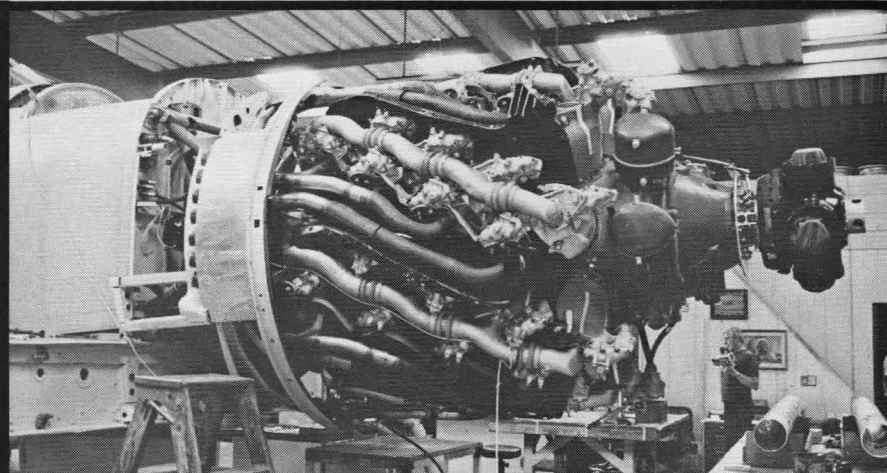
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ALL ARTICLES AND PICTURES BY JACK COX UNLESS OTHERWISE CREDITED.

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MAG CHECK

Someone once said, "Success breeds success" — and we're certainly about to see some dramatic examples of this old truism in the months ahead. The VariEze, Long-EZ, Q2, Dragonfly and Glasair have achieved such success in the marketplace, have created so much ego stroking notoriety for their designers and have attracted the attention of so many who previously had little or no interest in homebuilts that the rush is now on by newcomers who want their own piece of the action. In the past 6 or 8 months, I've become aware of more new high performance two-place homebuilts going together in workshops across the U.S. than in all the previous time I've been involved with the sport aviation movement . . . which goes back over three decades.

The Glasair seems to be the inspiration for most of the new projects. Almost all are composite airplanes and most are attempting to go even further in the degree to which pre-molding of components is done. Most are two-place, side-by-side, retractable geared configurations with sleek, flowing lines . . . in other words, similar to the Glasair. Powerplants range from 2-cycle Kawasakis to IO-540's. There are some metal and even a wood airplane in the bunch.

The really significant thing about these new projects is the way they are being financed. Not so long ago, a new homebuilt was something an individual designed and built for his personal amusement and use . . . and which happened to appeal to a lot of others when it showed up at Rockford or Oshkosh for the first time. Thus inspired (or pushed), the designer would draw up some plans, invest a little of the family's

Continued on page 4

KALEIDOSCOPE

CONSOLIDATED PANEL NEEDED

Back in the 1920s the Consolidated Instruments Company of America manufactured a neat little instrument panel that housed an altimeter, tach, temperature/barometer and oil pressure gage. Oval in shape, it was quaintly typical of the Roaring 20's — artistic, yet simple — and was standard on a lot of lightplanes of that era. Rafe Tomsett of 5380 Carol Way, FlaBob Airport, Riverside, CA 92509 needs one for a **very** rare antique he has acquired (which you will hear more about in the future). If any of you have one, or leads to finding one, please contact Rafe.

NEW KREMER PRIZE

British industrialist Henry Kremer has put up still another 100,000 pound prize to encourage manpowered flight — 20,000 pounds of which will go to the first pilot who flies a 1500 meter triangular course in 3 minutes. Additional 5000 pound prizes will go to pilots who raise the speed record.

In an effort to see more practical manpowered craft developed, the rules for the new competition allow onboard energy retaining devices that can be spun up, wound, cranked or whatever for 10 minutes before the aircraft crosses the start line . . . by the crew and as many as two ground crewmen. Compressed air, batteries, flywheels and, yes, rubber bands are already being considered as energy storing devices.

A triangular course was chosen so that the sharp radius turns would limit the span of the aircraft. 100 foot monsters like the Gossamer Albatross and Condor that were flyable only in virtually zero wind conditions would not be competitive in the new race — smaller machines of perhaps 50 feet span are anticipated.

TURBINE BLIMP

Here's one for you lighter-than-air fans. Goodyear Aerospace is building what they believe is the world's first turboprop powered airship. The overall size is about the same as the current Goodyear blimps that spend most of their time televising sports events, but the gondola will be built of composites — carbon fiber and Kevlar. The props will be ducted to cut down on noise. Maximum speed will be 65 mph, about 15 mph faster than current Goodyear blimps. Goodyear expects the new gasbag to be flying by 1986.

COMET . . . CONTINUED

The latest word in the continuing saga of the D.H. 82 Comet "Grosvenor House", winner of the 1934 London to Australia air race, is that it will be restored as an apprentice training project of the Royal Aircraft Establishment at Farnborough, England. Materials are to be supplied by the aircraft's owner, the Shuttleworth Trust. Hopes are still high that the famed racer will be ready for flight in 1984, in time for the 50th anniversary of the England-Australia race.

HIDDEN TREASURE

Stacked in the rafters of the main hangar at the El Mirage, CA airport are 6 Culver V fuselages. They appear to be what was on the production line when Culver closed its doors in the late 40's. Although at least 35 or 36 years old, they appear to be in good shape. One thing is for certain, they are in a good place for long term storage — it's DRY at El Mirage. No one at the airport seemed to know who the fuselages belonged to, how they got there and when. Can any of you

readers shed some light on the mystery?

In the same hangar with the Culver V fuselages was a BD-5 fitted with two propane pressure jets . . . and a huge gas bottle mounted behind the seat. It had been taxiing on the El Mirage lakebed, we were told.

SEA HAWK NEWS

By the time you are reading this, many of you will have seen Garry LeGare's second Sea Hawk amphibian, N83SH. It was scheduled to debut at Oshkosh. This aircraft is the "production" prototype, in that it has been built in the molds from which kit parts will be pulled. The biplane Sea Hawk has undergone quite a metamorphosis in power. It flew initially with a Revmaster VW, was later refitted with a 100 hp Lycoming O-235C and, now, the new bird will get its push from a 180 hp Lycoming O-360! With this much power and a gross weight of 1500 pounds, the Sea Hawk will have a power-to-weight loading of just 8.33 pounds. With just a 170 pound pilot aboard and a gross of 1040 pounds, the power loading is just 5.77 pounds — better than a Pitts or Christen Eagle, Garry points out.

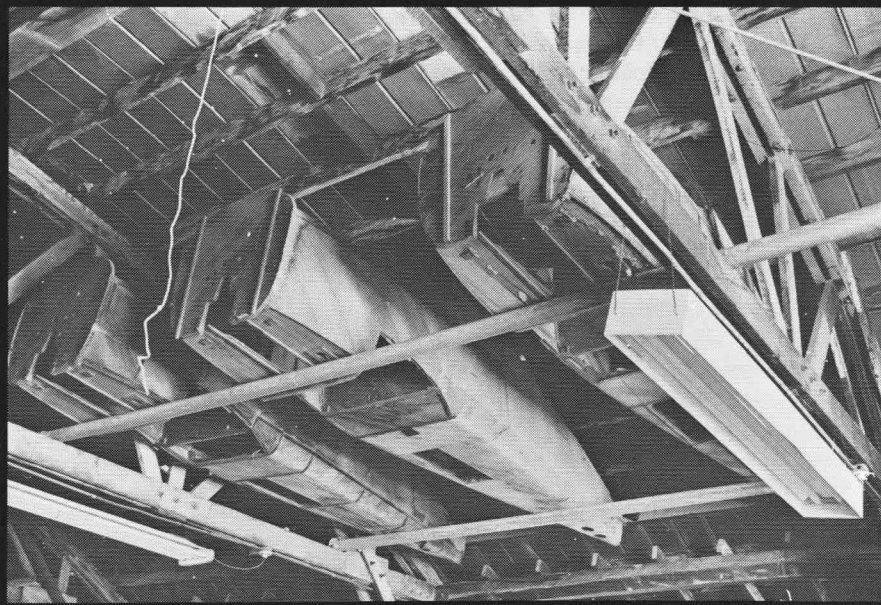
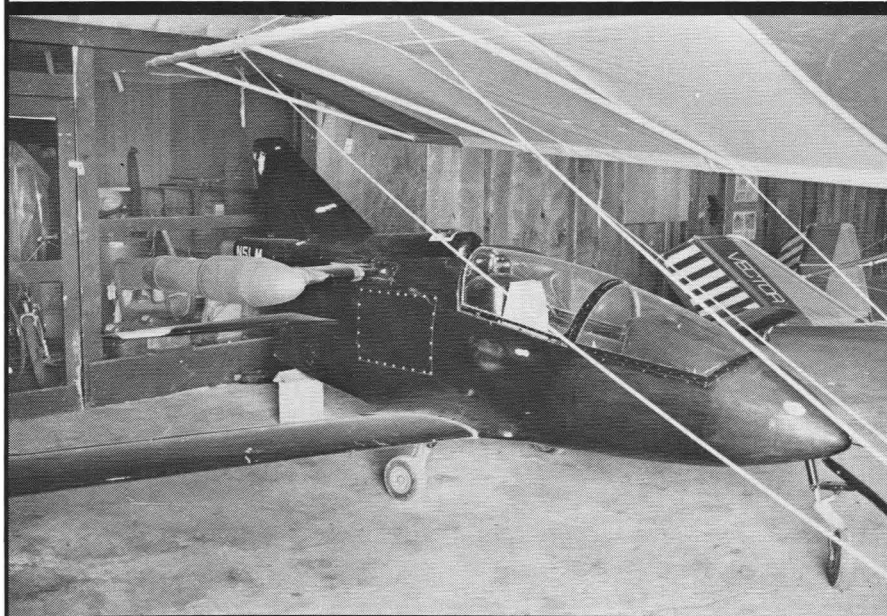
N83SH will also be fitted with 6:00x6 tires on the main gear . . . which makes it a "Bush Hawk".

A newsletter for builders and enthusiasts of the Sea Hawk was launched in July. It's a quarterly and costs U.S. and Canadian subscribers \$6.50 per year. Overseas subscribers will get their issues via air mail for \$8.50 per year. Mail your checks to Aero Gare, Bldg. 105, Mojave Airport, Mojave, CA 93501.

DULLES 400

The 2nd Annual Dulles 400, a performance and efficiency race, will start from the Dulles International Airport on October 1. For applications and details, contact: Milton Brown, National Aeronautics Association, 821 15th St., NW, Suite 430, Washington, DC 20005. Phone 202/347-2808.

Propane powered BD-5 at El Mirage.



Culver V fuselages in the rafters at El Mirage.



TC-2 FLIES

Val Bernhardt's sleek little TC-2, which we featured last time, made its initial flight on May 16 at Immokalee, FL. The test pilot was Mike Schlick, builder of the outboard engine powered BD-5 shown at Sun 'N Fun in March. (Mike is a former Air Force fighter pilot and is now a captain for Eastern Air Lines.) On a subsequent flight, the picture shown here was snapped. The goal at that point was to get the time flown off so the airplane could be flown to Oshkosh this month.

If you want to know more about the TC-2, send five bucks for an info kit to AeroMirage, 3009 NE 20th Way, Gainesville, FL 32601. Phone 904/377-4146.

WESTAIR SPLASH

The Westair, a new all-composite 4-place homebuilt kit design shown at Sun 'N Fun in March, was ditched in Pensacola bay on its return trip to its home base in Houston. The airplane was on final to Runway 25 at Pensacola Muni when the 200 Lyc gave up the

ghost. Fortunately, no serious injuries were suffered by the two occupants on board. The airplane was last seen departing for Texas on the back of a truck.

FIRST HOMEBUILT TROJAN FLIES

The first homebuilt version of David Thurston's Trojan amphibian has flown in North Carolina. The builder, Billy Johnson of Leland, NC, lifted it off on May 20 . . . after 7½ years of building time. Cruise at 75% is 155 mph, top speed is 162 and stall is at 60.

An outfit in Florida is working to certify a version of the Trojan — which will be re-named the Seafire.

RW-3 MULTOPLANE

Gar Williams has an unusual aircraft in his restoration shop in Naperville, IL — a German RW-3 Multoplane. Owned by Rik Beeson of Santa Cruz, CA, the aircraft is a two-place tandem powered sailplane. Its 75 hp Porsche engine is mounted amidship and drives a prop mounted in a slot in the vertical

fin. Gar is restoring the long winged bird and should have it flying late this summer.

Gar says he will take on any project, and the Multoplane is pretty good evidence he means what he says.

STILL ANOTHER LAIRD

John Morozowsky of Avondale Airmotive in Zanesville, Ohio has informed us his company owns and is restoring a 1928 Laird LC-1B that once belonged to Howard Hughes. It is in excellent shape, he says, so will be an easy restoration. Avondale Airmotive also has a 1930 SM-8A, 1935 Aeronca C-3, 1936 Taylor Cub, 1943 Cub, 1925 Waco 9, 1940 Funk, 1947 American Eaglet, 1935 Franklin glider and many others. Quite a collection, eh?

A PREDICTION

In late June, FAA amended EAA's auto fuel STC for the Continental O-200 to also include the A-40, A-50, A-65, A-75, C-75, C-85 and C-90 series. At that time 300 of the required 500 hours of test time on EAA's Cessna 182 had been successfully completed . . . and in Minden, NE an ag operator named Petersen had obtained STC approval to use auto fuel in about everything powered with the P&W R-985 and R-1340 . . . and had begun ground tests of the Lycoming O-320 which powers those zillions of little Hershey bar winged Cherokees that infest every airport in the world.

Now here's my prediction. The minute the oil companies and the engine and airframe manufacturers see enough airplanes approved for auto gas to sniff the sweet aroma of profit, then one fine morning we're going to get a bag full of press releases that, reading between the lines, will go something like this:

"After extensive and intensive testing that extends as far back as yesterday afternoon, our highly skilled engineers and technicians have discovered that gosh, golly, darned if our airplane engines won't run on auto gas after all! Please ignore our previous statements on this matter as we have discovered them to be the work of an obviously deranged former employee in our PR department."

When? About a year from now.



MAG CHECK...Cont.

savings to have a batch printed up . . . and with a few bucks for an ad in **Sport Aviation** quickly found himself in business.

Today, the high performance, all composite homebuilt is a sophisticated aircraft that, typically, has been designed by an aeronautical engineer (or engineers). Computer analysis is common in the design phase and static load testing, shake testing for flutter and drop tests for the landing gear are the norm. Computer derived airfoils mathematically tailored to the aircraft's anticipated performance envelope . . . use of the latest man-made materials — Nomex honeycomb, carbon fiber, Kevlar . . . heat cured resin systems . . . ovens and even autoclaves . . . all add up to the obvious fact that it takes some big bucks **up front** to get such a program off the ground.

What's happening is that homebuilt enterprises are being cranked up like Piper, Cessna and Beech once were . . . which brings us to the point of all this.

Why?

Why don't these entrepreneurs just certify their airplanes and become big time manufacturers? Well, the ones I've talked to say that the cost of money today, the expense of FAA certification paperwork, the time it takes to meet all the bureaucratic delays (while the meter is running down at their friendly banks) and the expense of putting a dealer system in place make it just too difficult to bring a 2-place, high performance, certified airplane to the marketplace. The homebuilt kit is the only **profitable** way to do it, they have concluded.

So, what's in all this for us potential customers? Well, professionally designed and pretty thoroughly tested airplanes, for one thing. With the competition becoming so fierce and with so much money at stake, kit makers can hardly afford to present us with less. But even if we don't buy one of the new forms of rapid transit, it's gonna be loads of fun sitting back watching all the competitive sparks fly!

It's the American way.



Cruisin' California II

Bob Hovey's Delta Hawk



In late May Golda and I jumped a Kerosene Komet and headed west on our annual trek to California. A few hours later we were met by our friends, Ken and Marie Brock, with whom we have the pleasure of attending the Watsonville and Merced fly-ins each year. As usual, we departed the LA basin late in the day via the Brock's Turbo Centurion, with Bakersfield as our destination. A number of sportsman pilots from LA and points south meet there every year, partly to escape the seemingly inevitable early morning coastal fog and/or low cloud deck and partly to just get together, lounge around the pool of the airport motel and have dinner together at a local Basque restaurant.

That morning roofs had been white with frost in Milwaukee, but at 7:00 p.m. Pacific Time in Bakersfield the motel thermometer read 96 degrees in the shade. What a difference a day . . . and the wonders of modern travel . . . makes, eh?

Early the following morning, Ken and I slipped away for a short flight south to Costerisan Farm, scene of a big ultralight fly-in scheduled for the upcoming Memorial Day weekend. Ken had the new Avion there on static display, which I wanted to see, and we hoped some other interesting new arrivals might also be on hand for us to admire.

The Costerisan Farm airport is a huge grass runway set amid endless stretches of

irrigated wheat fields. A good sized lake has been created alongside the runway, with a nice picnic/recreation area between the two. The site is ideal for a sport type airport, being far enough south of Bakersfield to avoid complaints by neighbors and with nice big level fields in all directions in case of power failure on take-off.

Delta Hawk

Aside from the Avion, the most interesting ultralight of those yet on hand was Bob Hovey's new Delta Hawk. It's a little taildragger biplane much like his earlier Delta Bird, except that the fuselage is now enclosed. Bob hopped in by flipping up the forward turtle deck and sliding backward into the seat. He fired up, taxied out and firewalled the 2-cycle, belt reduced twin. The tail came up instantly and in no more than a couple of fuselage lengths, the Delta Hawk was off and climbing strongly. I watched several landings and it was obvious the aircraft is a docile little thing. Bob made 3-pointers, tail low wheel landings and normal wheelers, and there was no apparent tendency to bunny hop down the runway with anything other than a full stall, three pointer . . . like a Cub will treat you to if you touch down without the stick back to the stop. When he was through flying, Bob taxied back to his parking spot, with the

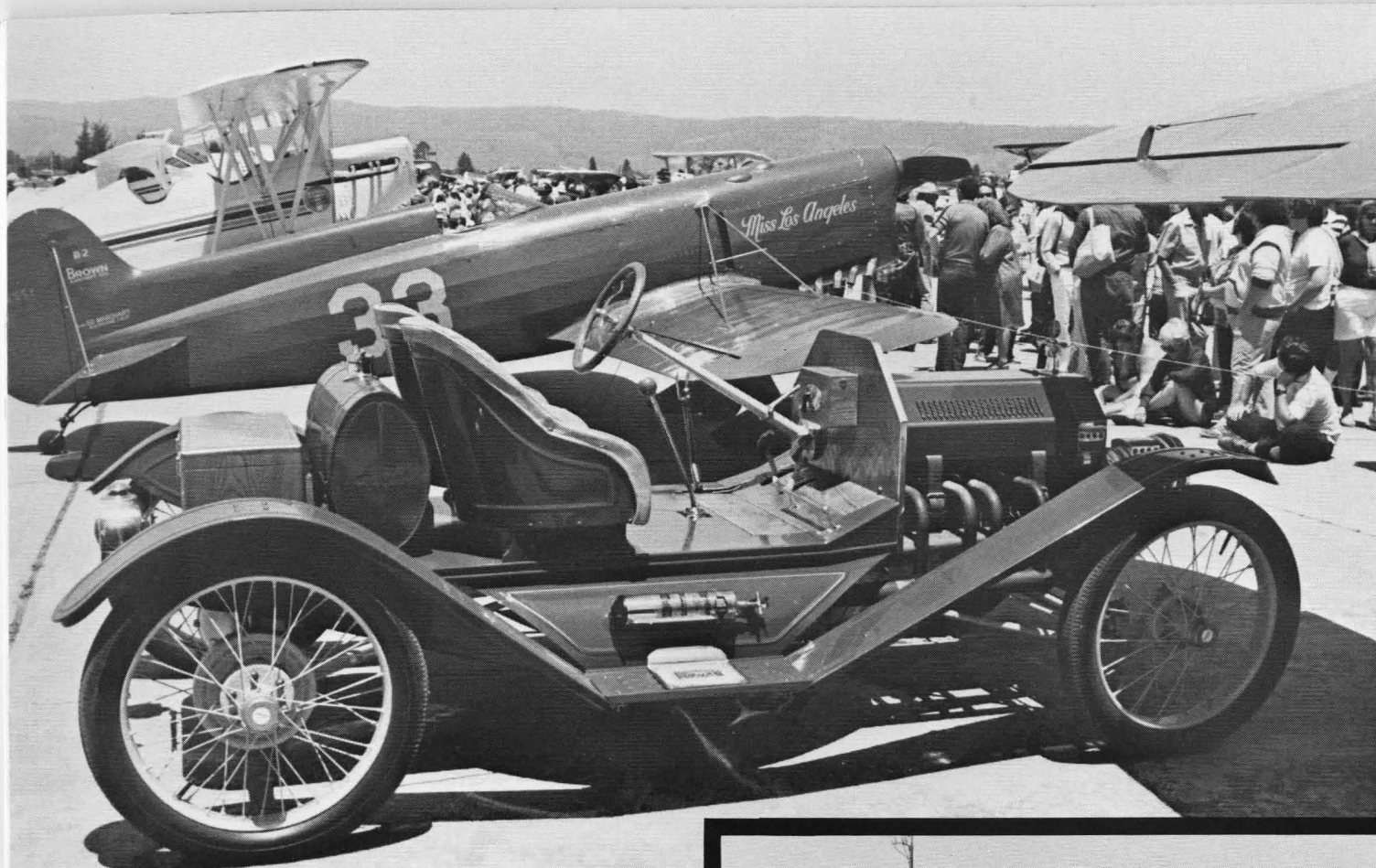
tail up all the way.

The Delta Hawk, by virtue of its being a biplane, is one of the most compact ultralights around today. It comes as a kit one must build from, so you homebuilders will appreciate it; and a lot of you will like the fact that the pilot's seat is well back in the fuselage and between the wings — which means a lot of structure between you and the outer extremities of the airframe. It also **looks** like an airplane, for whatever that's worth. You can get an info pack on the Delta Hawk for \$5.00 from Aircraft Specialties Co., Box 1074, Canyon Country, CA 91351 (\$10.00 in U.S. currency for overseas orders).

On To Watsonville

Returning to Bakersfield's Meadows Field, we loaded up and launched for Watsonville. It was already quite hot on the valley floor and the 210's turbo really earned its keep by quickly hauling us up into cool, smooth air. As we approached Priest VOR, I could see the town of Coalinga below . . . and as I expected, no evidence of the recent devastating earthquake was visible from nearly 10,000 feet. Earthbound problems have a way of fading with altitude . . . which is one of the reasons we sportsman pilots fly, I suppose.

On the ground at Watsonville, it was obvi-



Racers

Ken Brock's Brantly



ous the fly-in was going to be a good one. The first airplane I spotted as we taxied in was Ted Hendrickson's Monocoupe 110, so I knew what my first interview would be. Ted is a long time friend and I've been a Monocoupe lover since childhood, so this would be a natural. The first model airplane I ever saw that would take off under its own power was a rubber band powered 90A. It was a stick and tissue job and was black and white. I was about 7 at the time, but I recall my amazement when it lifted off as if it happened this morning.

Anyway, I've had a soft spot for Monocoupes ever since, and there was Ted's 110, with its big Cincinnati Streamliner wheel pants, beckoning me from across the ramp. But first things first, friends. It had been a hot and dry trip up from Bakersfield, and naturally our **first** stop had to be Watsonville's famed strawberry milk shake stand for the first of what would be altogether too many of those divine concoctions we would delight in before the weekend was done.

And who do you think we found in line in front of us — Ted Hendrickson, of course! You can read all about the 'Coupe elsewhere in this issue.

The weather at this year's edition of the Watsonville Fly-In was a carbon copy of last year's — nice on Friday, cool and overcast on Saturday, nice again on Sunday and Mon-

day. Mercifully, it was only cool on Saturday; last year it was **cold!**

We enjoyed a very large turnout of showplanes, with a good number of new vintage restorations and newly minted homebuilts. No new homebuilt designs, but lots of examples of beautifully built existing designs. VariEzes and Long-EZ's were the most numerous, but T-18's and RV-3's were close behind.

As I've mentioned on these pages before, Watsonville is a rather unique fly-in. The concession stands feature local goodies like french fried artichokes, huge sweet strawberries, apple juice, etc., and antique cars are displayed among the vintage aircraft. A lot of neat old Model T racers always show up — must be a club for owners in the area.

Then, there are the Saturday and Sunday night banquets at the local fairgrounds . . . still the finest in all the world of sport aviation. Once again, my compliments to the chef for some of the best barbecued beef and chicken I've ever tasted.

The Saturday night affair features an indoor model airplane contest, won for the second year in a row by Frank Womack — this year with a Peanut Scale Bucker Jungmann that circled lazily over everyone's heads for a full 27 seconds. The "contest" is more of a fun thing than a real competition and in the end it all sort of degenerates into

a paper airplane throwing free for all reminiscent of a classroom full of 6th graders with their teacher gone to potty. Everyone has a wild and crazy time and, what th' heck, us airplane nuts are just a bunch of overage kids anyway . . . aren't we?

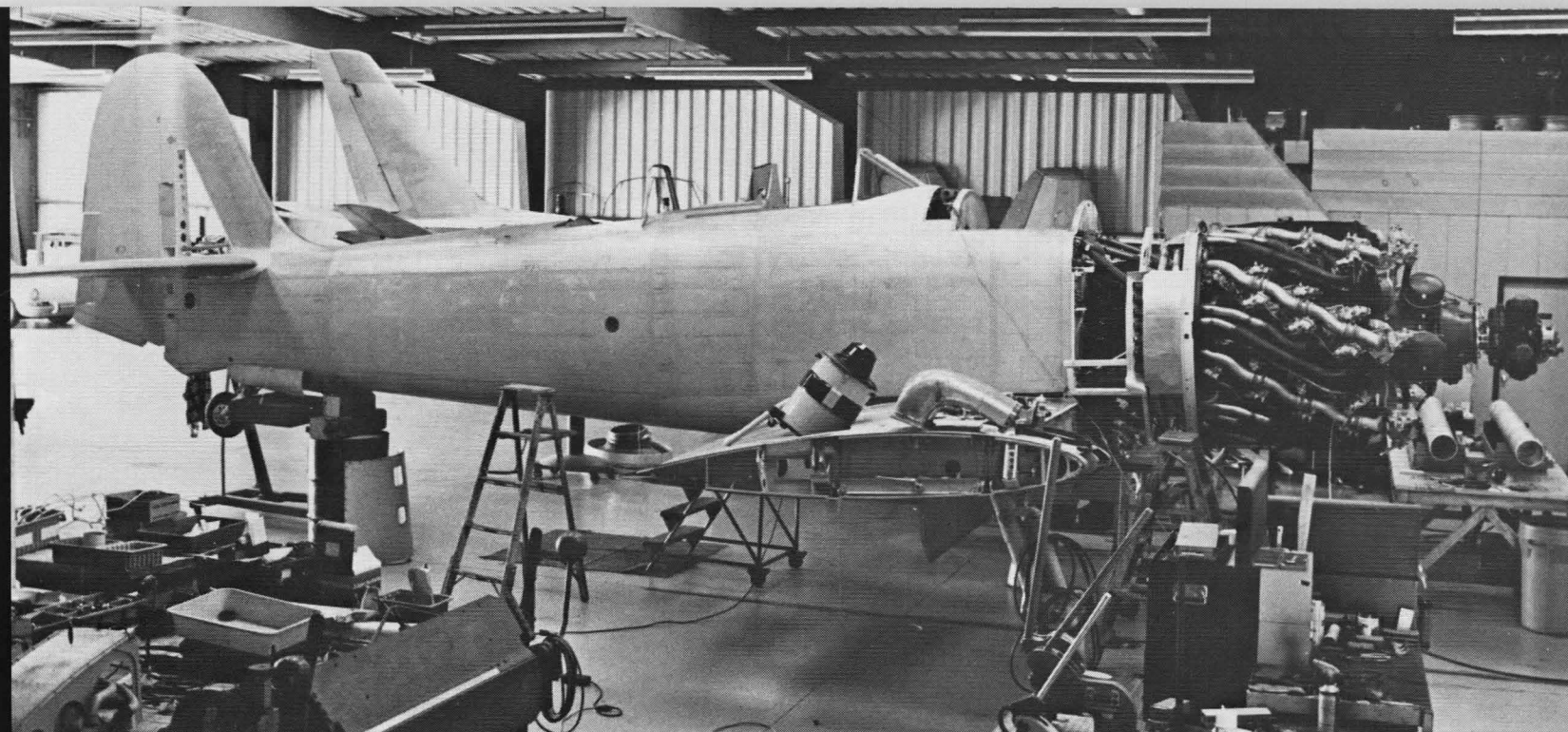
Back To The Basin

On Monday morning, our hearty crew mounted up and winged south to LA. Our usual route is south via Victor 25 to Santa Barbara VOR, down the coastline to LAX and over to Long Beach where Ken bases the 210. Last year I gave Santa Barbara a hard time, questioning its very existence since it was always under a cloud layer when we passed overhead. Well, fellow sportsman pilots, I can now tell you with absolute certainty that Santa Barbara **does** exist. There was a cloud deck again this year all over the Santa Barbara Channel area . . . but there was one big hole right over the top of the city and its airport.

So, no more digs, Santa Barbara. I know you're down there, now!

Airport Hopping

For the next few days, Ken and I spent a lot of his valuable time airport hopping around the LA Basin. One evening we flew his



Brantly helicopter from his manufacturing facility in Stanton, CA to Corona Airport, where he bases his T-18 (featured in our Winter '83 issue). The airport is fairly small by most standards, but has several hundred airplanes based there, many of which are homebuilt and vintage types. The FBO offers the cheapest avgas in the LA basin — about \$1.60 per gallon in early June — so, has a constant line at the pumps.

Whatever body or group that sets the rules for hangar tenants at Corona should stand up and take a bow for their good common sense. Apparently, there are very few in the way of no-nos around the place . . . which results in a uniquely California airport lifestyle. It's warm year 'round and that far inland is quite dry, so pilots can utilize their T-hangars for more than just a place to store their airplanes. It's the darndest thing you've ever seen — the airplanes sit amid old motorcycles, cars, boats, airplane magazines, glass cases full of model airplanes, airplane (and girlie) photos bedeck the walls; there are couches, armchairs, TV's, refrigerators, hotplates and coffee pots — all the comforts of home. Obviously, pilots use their hangars as their dens-away-from-home. Others use them as their workshops to build homebuilts and/or restore antiques and have all sorts of power tools sitting around. When they complete their projects, they move out the tools

and move in the couches and TV's.

The virtue in all this is that pilots can justify their airplanes and the expense of owning and maintaining them **because they can enjoy them on a year round basis**. Even on the rare occasion when the weather is bad, they can sit around and watch a ball game, tell lies with their friends, work on their airplanes or whatever. The airport is a **community**, not merely cold storage. There's a good restaurant right on the field and a number of businesses that provide maintenance, radio work, etc. It's the kind of friendly place I'd like to base my airplane at if I lived out there . . . but I'd have to inherit a hangar to do so. The pilots who have one know they have a good thing going and aren't about to turn one loose.

On another day, Ken and I flew his T-18 the entire 6 miles north from Corona to Chino. This is still another airport of intense interest to sportsman pilots. Ed Maloney's Planes of Fame museum is located there and several outfits restore warbirds and build unlimited racers . . . one of which is Frank Sanders, ably assisted by his two sons, Brian and Dennis. We stopped in to see the Sea Fury they are retrofitting with a P&W R-4360 . . . which could well give the Mustangs a run for the money at Reno next month. The design philosophy is quite simple: the Sea Fury with its thin wing and clean fuselage needs no

modification to go very fast and the 4360 produces so much power (3000 hosses) that it does not need to be hopped up — so, the resulting racer is pretty straightforward and should require a minimum of debugging. With the Sanders' experience with Sea Furies, the airplane should be quite fast the first time out on the race course.

Quite naturally, the workmanship on the airplane is first class all the way. Brian and Dennis, incidentally, initiated the project by putting up the cash for the engine and prop — money they earned from the sale of a Beech AT-11 they restored a couple of years ago. The two are fine young men and are already experts in their chosen field of endeavor.

From Chino, we zipped up to Cable Airport and parked in front of a couple of the most interesting hangars I've ever had the privilege of stepping into. Lane Leonard, who retired from American Airlines a few years ago as the company's acknowledged authority on the 707, is a sportsman pilot, aviation memorabilia collector, antiquer, antique car, motorcycle and motor scooter collector to end 'em all! He's got stuff I never even heard of — old aviation magazines, photographs, brochures, books and much, much more . . . all there in his hangars. He owns a Staggerwing and a Travel Air D-4000, a Cessna 172 and who knows what else. He



Lane's "reading room"

also leases out space to others, including Tony LeVier for his Velie Monocoupe, a Jenny . . . and even a Long-EZ. Still another hangar located across the airport houses more of his antique cars and airplanes, including a Nicholas Beasley NB-8G, but a lowering ceiling chased us away before we had the opportunity to see all of it.

Each year in January, Lane hosts a gathering of aviation and antique car enthusiasts at his hangars and uses the occasion to honor aviation greats like Jimmy Doolittle — so many of whom live in the LA area. You may well read about one of these events in a future issue.

At Watsonville we saw a T-shirt that read, "He who dies with the most toys . . . WINS!" After seeing the head start Lane has, I'm ready to concede him the victory right now!

From Cable we flew to the famed FlaBob Airport to call on Ed Marquart and Bill Turner. Known internationally for his marvelous Charger biplane design, Ed is just plain Ed around FlaBob — everyone's friend and the guy you know will lend a hand any time it's needed to get an airplane going or when a homebuilding problem gets too complex. He always has something interesting in his shop and this time was no exception. He was finishing up a Fleet and had Ray Cocking's old time sprint car replica tucked over in one corner, just to name a couple of the goodies. Most intriguing, however, was a big sheet of blued metal on which Ed was lofting the wing ribs for a full scale replica of the Keith Rider R-5 racer. It will be built by Ed and Stanley Racleff of Baldwin Park, CA and will be powered by a 200 hp Ranger engine. The wood spars have already been laminated and the

plywood ribs were to be cut out as soon as Ed finished his lofting. The R-5 will be flown as a demonstration/show plane much the way Bill Turner does his Miss Los Angeles . . . and his Gee Bee Z before he placed it in the San Diego Aerospace Museum.

Bill flew Miss Los Angeles to both Watsonville and Merced and collected still another shelf full of trophies for it. We caught him between events at FlaBob and learned his Miles and Atwood Special replica for Leon Atwood was in a temporary hold during the peak of the fly-in season. Work is expected to recommence early this fall. A fellow has to have time to play with his **exciting** toys, you know!

Spruce Goose

On another day, Ken, Marie, John and Wren Shuttleworth (John was the creator of Mother Earth News), Golda and I toured the new dome home of Howard Hughes' legendary Spruce Goose. I had visited the big boat in February to do an article for **Sport Aviation**, but the place was three months from completion at that time — it opened May 14. This time, we wanted to see the completed displays, the audio visuals and the full scale replica of the Hughes Racer — which was under a tarp when we were there in February. Unfortunately, that was a good place for it — if you've seen the marvelously crafted original at the National Air and Space Museum in Washington, this one is quite a disappointment.

Otherwise, however, the Goose sits there in all its glory, with huge crowds streaming in all day, every day, we were told. It has

already become one of the West Coast's premier tourist attractions, far overshadowing the Queen Mary moored a few hundred yards away. The line up to the viewing platform alongside the flight deck and down into the bowels of the fuselage was long, but moved quite rapidly. Only the Garden Restaurant remained to be completed in early June.

The flying boat, itself, is simply so awesome it defies adequate description. It is displayed quite effectively, bathed in constantly changing colored light. If you're ever in Los Angeles, you simply **MUST** pay it a visit.

Avion

Late in the week, we once again climbed up out of LA's murky atmosphere and cruised over the San Gabriels to El Mirage dry lake. Ken Brock has his own airstrip and hangar there now, just off the edge of the lake bed. The plan was for Ken to test fly some improvements in the ultralight Avion early the following morning (Friday), then late in the day, we would launch for Merced.

The Avion, as many of you will recall, is an ultralight that was being developed by Bob Lovejoy, the creator of the original Quicksilver. Sadly, Bob was killed in a crash of the prototype last year, the result of a retaining pin being left out of the elevator control push/pull cable. Before his untimely death, Bob and Ken Brock had entered into a business arrangement in which Ken Brock Manufacturing would produce kits for the Avion. Following Bob's death, the future of the project seemed bleak, with some hereto-



Ken Brock flying the Avion at El Mirage.



Merced champion Travel Air 3000.

fore uninvolved interests attempting to gain control of the design. Ken quickly cleared the air, however, by letting it be known that the business arrangement was still valid and that Bob's share of any future proceeds would go to his daughter (Bob was divorced). People who know him, know Ken says what he means and means what he says . . . which is a pretty refreshing thing to see in the cut-throat world of ultralight business.

Anyway, we were up at the crack of dawn and were soon out on the El Mirage lake bed in a station wagon chasing alongside Ken as he flew the Avion. The photo you see here was taken at that time. The prototype Avion was a proof of concept machine, intended to determine if the design flew well. The one pictured here has a number of structural improvements, mainly in the wing, to both strengthen the airframe and facilitate production.

The Avion is somewhat unique in that it is so utterly simple that many ultralighters look at it and think something has been left off! There are no wires or cables in its structure. It is, nevertheless, very light (which means it performs well with a small, inexpensive engine), yet it has conventional 3-axis controls. It appeared to fly like a "real" airplane, also, but, unfortunately, the test flying was cut short by a minor accident. In the winter, the lake bed is flooded and as it dries out in the spring, there are always a few people who have to get out on it with cars and trucks to leave their calling cards in the form of deep ruts. In the early morning, low angle light, Ken ran up on a deep gash, spotting it too late to avoid damaging one of the landing gear legs. It was easily repairable, but put

off flying to another day.

The Avion is a very impressive little machine and, I believe, will find a secure niche in the ultralight market.

And Then To Merced

In the air again, we climbed out over the Mojave Desert, past Edwards AFB — noting that the winter flooding had erased the outlines of the Space Shuttle's runway in the lake bed — over the Tehachapis and into the Great Valley of California. From there it was downhill all the way to Merced . . . and watching out for B-52's from Castle AFB as we approached the city.

Like Watsonville, Merced '83 was also a rip-roaring success. Beautiful weather prevailed all weekend and the place was literally wall-to-wall in airplanes and people. West Coast Travel Air owners had picked Merced as a place to get together, so we had the opportunity to ogle a bunch of nice ones. Most were 4000's with Stearman engines . . . and all had been dusters as recently as the 1960's. Owners will lose a few points for authenticity with a Continental R-670 or Lycoming R-680 up front, but in a place like California where open cockpit airplanes can be flown year 'round, a good engine is a must.

Staggerwings were also out in force at Merced, along with the usual large number of Ryans. The PT-22's made their annual formation fly-by in fine, clattering style. Really exceptional classics — Swifts, Luscombes, Cessna 120's and 140's, Cubs, Champs, etc., etc., were there in such numbers that I have no idea how the judges managed to look at all of them. In the homebuilt area, we

saw only our second plans built Dragonfly and a bunch of new RV-4's — which you will read about in this issue.

Merced annually awards a tremendous number of trophies — more than any fly-in I've ever attended — and when they finally reached the end, the Numero Uno of the show was Ted and Flora Homan's Travel Air 3000 — the Hismo Travel Air, as it was commonly called. Ironically, it had been flown to Merced by Steve Pfister, who had flown Bill Spriggs' Staggerwing to Watsonville the previous weekend. Now, follow me closely on this: at Watsonville, the runner up trophy is the Mayor's Trophy, but at Merced, the Mayor's Trophy is the **top** award. Steve Pfister helped complete both the Homan Travel Air and the Spriggs' Staggerwing and flew both of them to the respective fly-ins . . . and both aircraft are based on Santa Paula, CA. Got that? Okay, for the two weekends, then, Steve Pfister hauled home two Mayor's Trophies. It was a big 7 day stretch for him and added further luster to the reputation of the Santa Paula gang. Congratulations to all.

The next day as we winged our way south to LA, the realization began to sink in that another week of California cruisin' was quickly coming to an end . . . kinda sad, because we really enjoy it out there and miss our friends when we leave. California always has been and, I suppose, will remain the world's hotbed of sport aviation . . . a fact that, no doubt, will see you reading a Cruisin' California III a year from now!



Ted Hendrickson's Grand Champion



MONOCOUCPE 110

Ted Hendrickson is a versatile fellow. He is one of the most successful of the wooden propeller makers for the homebuilt market and is one of the recommended suppliers of props for the Rutan VariEzes and Long-EZs. Yet, far removed from that ultra-modern extreme, Ted also dabbles in antique cars and airplanes . . . quite successfully it turned out this year at Watsonville. His beautiful red and maroon 1931 Monocoupe 110 was a runaway choice for the Grand Champion antique award there.

The 110 was a short lived variant of the Monocoupe 90 series, with no more than about 50 being built over the total model run. Most were built in 1930 and 1931. Essentially just a Model 90 (90 hp Lambert) with a 110 hp (later 125) Warner, the 110 is, nevertheless, very important in Monocoupe lore. It was the model that made the reputation of the company.

In the early 30s air racing was rampant in the USA. The great national events like Cleveland and Miami were simply the visible tip of the iceberg. County fairs, state fairs, flying clubs and all sorts of civic organizations staged minor races, often using smokestacks and church steeples as pylons.

At all levels, the Monocoupe 110 was the holy terror of its cubic inch class and often won against aircraft with much larger en-

gines.

Just how fast was the 110? Factory specs claimed a maximum speed of 133 mph and 142 with an optional Townsend ring cowl. Cruise was 112 with a fully exposed engine and 120 with the ring. Now, those aren't terribly exciting numbers today when 100 horsepower homebuilts easily nudge 200 mph, but keep in mind we are talking about 1931 . . . 52 years ago and just 4 years after Lucky Lindy's flight to fame.

Herbert Hoover was still president, fer gosh sakes!

Today, FAA records show just 9 Monocoupe 110's surviving the years and the abuse of untold ham fisted pilots. Ted Hendrickson's 'Coupe is Serial Number 6W00, which was near the middle of the production run. Its early career was different from the racing 110's . . . about as far away from the pylons as it could get, in fact. It went out of the factory to a dealer or distributor, but from there went to the CAA for use by its inspectors.

CAA gave the 'Coupe the number NS-29, but when it was ultimately sold back into the civil market, it was renumbered NC18629.

Ted received no logs with the airplane when he bought it, so he has little knowledge of the history of the airplane after its CAA ownership. It was registered to Richard El-

lington of Walbridge, OH during the 1960s and was often advertised for sale in **Trade-A-Plane**. Eventually, it ended up in Bandon, Oregon and Ted hauled it away from there in 1974.

He didn't have much — at least for anyone less a craftsman than he was. The 'Coupe needed a new wing, all new wood in the fuselage, new fabric, new interior, new glass, new sheet metal and a thorough prop and engine overhaul. All that, you must agree, pretty well qualified the airplane for the term "basket case".

Ted constructed a new wing, which really wasn't that much of a challenge for a one time cabinet maker and builder of a trophy winning Emeraude. The old hardware was still in good shape, so was cleaned up, repainted and reused. Somewhere along the way, the one piece wing had had its cabin skylight covered over, so Ted built it back in.

Fortunately, the fuselage was in pretty good condition. The tubing required no replacement or rewelding, just a cleanup and paint. All the sheet metal up front, with the exception of the nose bowl, was replaced, including genuine brass footlocker catches right out of a local hardware store . . . just like the ones used originally in 1931. A lot of steam bent plywood was used to round the corners of Monocoupes, but Ted replaced

his with formed aluminum sheet. The wood, largely balsa and spruce, used for fairing the steel tube tail pieces was replaced with new material.

Mohair was likely the standard upholstery material when the 'Coupe was new, with leather as an option. Ted used a good grade of naugahyde to simulate the latter. All the instruments except for the compass were original, so were used in a new panel Ted built. 110's emerged from the Monocoupe factory with a throttle quadrant in the lower center of the panel, much like those in modern Pipers (what's new, eh?), but it was missing in 18629. Someone had replaced it with push/pull controls. A friend of Ted's owns a Model 90 with an original quadrant, so he copied it precisely for his 'Coupe. The quadrant contains the usual throttle, mixture and carb heat.

The airplane had a bracket down in the floorboard for a fire extinguisher, but it was long since missing. Ted scrounged for years trying to find one that dated from the early 30's — and finally hit pay dirt at an old car swap meet. It was brass, so it matched up (after a good polishing) with the cowl latches. He even found an ancient brass tire gage, so it was shined up, too, and is displayed at fly-ins alongside the old fire extinguisher.

Naturally, all new Plexiglas was installed from windshield to D-windows, the latter installed with screws rather than glued to the fabric as they were originally done.

N18629's landing gear is the oleo "tripod" type common to the early 110's. It is heavily faired with balsa and covered with fabric tapes — all of which had to be replaced. Most of the fairings also had to be replaced and Ted bumped them out of sheet aluminum. The original cast aluminum wheels and surprisingly good mechanical brakes were retained, nicely streamlined with big long wheelpants. They are fiberglass copies of

Gar Williams' Cessna Airmaster pants, which are very similar to those used by Monocoupe. (They are available from Rattray Aircraft Co., Beloit, WI.)

As the airframe slowly came together, a lot of little authentic touches were incorporated. For example, Ted had John Barker, who works for Cole Palen, splice and wrap his control cable ends the way they were done in the days of yore. Ted says he just couldn't have lived with nicopress sleeves hanging out in the breeze on an otherwise authentic restoration.

Finally, all the beautiful craftsmanship was hidden away with an equally beautiful cover job, using Stits fabric and finishing materials. Since he didn't want to use his airplane's original black and orange CAA paint job, Ted was free to choose from the two standard trim schemes found in old photos of 110's — either one or two fuselage stripes. He picked the single stripe because he sees it as the older looking of the two. Monocoupes could be ordered out in any color a customer wanted to pay for, so Ted arbitrarily decided on red trimmed in maroon (Santa Fe Red and Boston Maroon, to be precise). This was a popular combination in the 20's and 30's, so very likely there were Monocoupes painted that color . . . anyway, it is richly beautiful on Ted's Coupe.

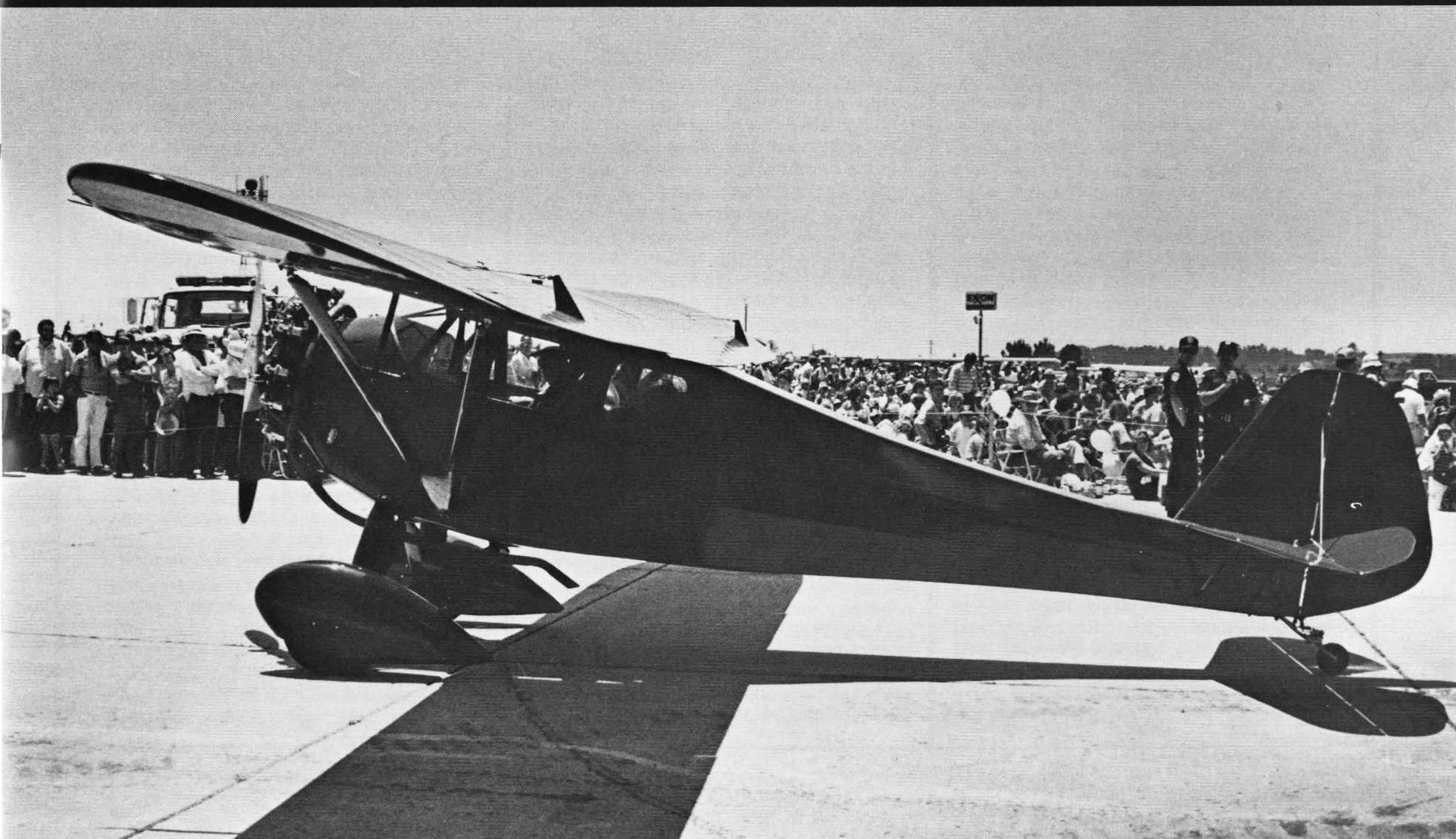
During the 110 production run, the Monocoupe company had one of its many financial crises — remember, the Depression was in full swing — and was moved from Moline, IL to Lambert Field in the St. Louis suburb of Robertson, MO. Only the first few were built in Moline, so Ted has the company logo and the Lambert Field address painted on the vertical fin of his 'Coupe. It seems blatantly commercial today, but it was a common practice in the pre-war years for airplane manufacturers to prominently plaster their names and addresses on the sides of their

airplanes . . . and subsequent owners were apparently expected to proudly display it as a kind of status symbol. Some of the companies, in fact, had elaborate and colorful logos that actually enhanced the appearance of the airplane.

O.K., you're wondering why I haven't yet mentioned the engine, right? Well, the airframe work just described was pretty straightforward and enjoyable for Ted, but the Warner was a totally different story . . . a painful, expensive and very frustrating story.

When he bought the airplane, the 125 Warner was supposed to have only 7 hours since major, but with some internal damage due to an oil pump failure. As it turned out, there had been a **lot** of damage. Ted bought all the new parts he could find, overhauled the accessories, found a new set of cylinders and had them chromed, went through a couple of sets of crankshaft and master rods before finding the right combination, experienced all sorts of frustrations with counterweights . . . but, eventually, got an engine together and running. More or less. After ten hours, he pulled a cylinder and found heavy wear paths in the chrome bores.

A complete new overhaul ensued, but the results weren't much better. The Warner still had poor throttle response and just seemed to be generally sick. After 5 hours, a tell-tale trace of wear was beginning to appear in the cylinders again, so Ted grounded the airplane and began to tear into previously unsuspected parts . . . one of which was his freshly overhauled carburetor. He took it to a shop other than the one that had done the original work and was promptly told the thing was a virtual disaster area, internally. The "overhaul" Ted had paid for had apparently consisted of little more than a clean-up and a paint job. There were even parts **missing** inside. It took \$135 worth of new parts and





a lot more for labor to make the thing whole again, but it appears to have been worth it. After two years of utter frustration, the engine, at long last, ran sweetly.

While all this heartache had been going on, Ted had made up his own new exhaust system, which included, as per the original, a long tailpipe that snaked down and along the bottom of the fuselage to a point well aft of the landing gear . . . which, considering the likely consequences of excessive exhaust fumes in the cabin, seems a logical enough thing to do. Looks kinda racey, too.

Ted added a carb heat muff and polished the brass covers that protect a portion of the valve train. Since he had only one set, he drilled their retainers and safety wired them . . . only to have a fellow give him 14 new ones.

It's perhaps ironic that a man who makes his living manufacturing wooden propellers ends up with an airplane that was never certified with one. The 110 has a Standard steel ground adjustable prop. Ted believes the engine would be smoother with a wood propeller, but will retain the metal one for the sake of authenticity.

Finally flying satisfactorily after three years of restoration time and a couple more sorting out the engine problem, Ted was finally able just this spring to settle back and begin enjoying flying his Monocoupe. It cruises at 110 mph, at 1825 rpm, which is pretty close to the book figures. It gets off in only 150 feet or so when flown solo and climbs at 1000 feet per minute. Fuel is carried in two 15 gallon wing tanks — at least that's what the fuel selector placard says. 14 gallons per

tank is closer to the truth, Ted laughs. At any rate, a 3 hour duration is available.

Asked how it handles, Ted says the rudder is very sensitive — so much so he presses on both to retain a little feel and provide some artificial dampening. The elevator is also quite sensitive but is adequately damped. The ailerons, he says, are pretty bad — very stiff and heavy to the touch and not very responsive. Recently, he sealed the gaps and lightened the ailerons up "by at least 50%". (Monocoups were great airplanes, but the company never did get the ailerons right. Later models had metal gap seals, but since you had to actually bend a long strip of aluminum when you moved an aileron, they remained horribly stiff. A lot of owners today substitute plastic tape in an effort to lighten 'em up a bit.)

Ground handling is just typical taildragger as long as he sticks to grass runways, Ted thinks, . . . "but it certainly doesn't like the asphalt!

"We dread a little crosswind on pavement. The brakes are really good on it, but on rollout I don't want to take my feet off the rudder pedals and get them on the brakes, because I'm afraid I'll lose it. I wait until it slows down, then I get on the brakes."

Those statements can, of course, be made of **many** airplanes from the 20's and 30's — just substitute whatever brand name you choose.

If you're an avid antiquer, though, what you've been reading here — problems and all — are simply part of the ambiance of owning an airplane of another era. You don't sit there thinking, "Boy, these ailerons are

lousy compared to a Bonanza", or, "Geez, only 110 on 125 horsepower — a T-18 would do 185." When the first blade turns on your 1931 Warner, it **is** 1931 . . . Prohibition is still on . . . the Great Plains are turning into the Dustbowl and "Okie" is becoming a part of the language . . . **Little Caesar** is a box office smash . . . and you are just as much at the mercy of the limitations of the engine design and metallurgy and what the plane's designer knew about aerodynamics and structures as if it really WERE 1931. You cruise at the same speed, you stall at the same angle and you travel the same distance on a gallon of fuel. And when you touch down again, you **better** have the taildragger instincts of a pilot of 52 years ago. Your antique airplane is a time machine and you are its prisoner or willing time traveller, depending on your attitude.

Ted and his wife, Betty, were more than willing time travellers in May when they flew from their home in Snohomish, WA to Watsonville, CA. Modern freeways streaked the landscape below and cities had certainly grown, but the ageless mountains were the same as in 1931 . . . and density altitude had the same detrimental effect on the Monocoupe's rate of climb. It was all worthwhile, however. On Sunday evening of Memorial Day weekend, they were rewarded for their efforts to preserve a little of aviation's glorious past by being declared the antique Grand Champion.

They took their trophy, smiled to everyone, climbed into their Monocoupe and vanished over the horizon . . . into another place and time.





KR

UPDATE

In our last issue, we told you of a chance encounter at the famed Santa Paula, CA airport with Wes Evans the day he just flew his KR-2 after refitting it with a Continental O-200 (100 hp) engine. We expressed the hope we would see him again later in the fly-in season and get some performance numbers for you. Well, as fate would have it, we did.

We saw Wes again at Watsonville in late May and soon had him talking into our tape recorder. Right away it was obvious he was having little in the way of problems with the new engine **and** that he was having a ball with his newfound performance. Would you believe that since mid-February, he had logged 73.5 hours in the KR-2! That's a year's flying and then some for most weekend pilots.

At 75% power at 7500 feet, he's getting an honest 180 mph . . . and can hit 200 mph at full throttle in level flight. His prop is a 60"x68", which is a rather extreme cruise propeller for this application, yet he still gets a 1400 fpm rate of climb. As an experiment, Ralph Wise's Formula One racing prop with a 59" pitch was substituted and it hauled the KR-2 aloft at 2000 fpm for the first 3000 feet.

It did so, however, at 3400 rpm, considerably over the O-200's redline of 2750.

"I wouldn't want to run the engine that fast all the time," Wes says, "but it sure was fun to go up that fast."

With the 60"x68" prop, the engine won't turn up over its 2750 rpm redline in level flight, but it does suck up the gasoline at that power — about 7 gallons per hour. That's more than the previously installed Revmaster 2100 turbo used to burn . . . but Wes is really not complaining. It's a price he's more than willing to pay for the boost in performance.

"It's a perfect installation," he says of the Continental, "the best thing I've done for the airplane."

We noticed a couple of other additions since we had last seen the airplane. Of course, the new cowling had been painted . . . and we felt obligated to publish some new pictures to show you what this beautiful airplane looks like now. Also, Wes had made and installed a fancy little wheel pant for the tail wheel. He confesses that he hasn't run any checks to see if it added any to his speed . . . but says that when he removes it, the KR looks naked without the pant — so, he'll

leave it on.

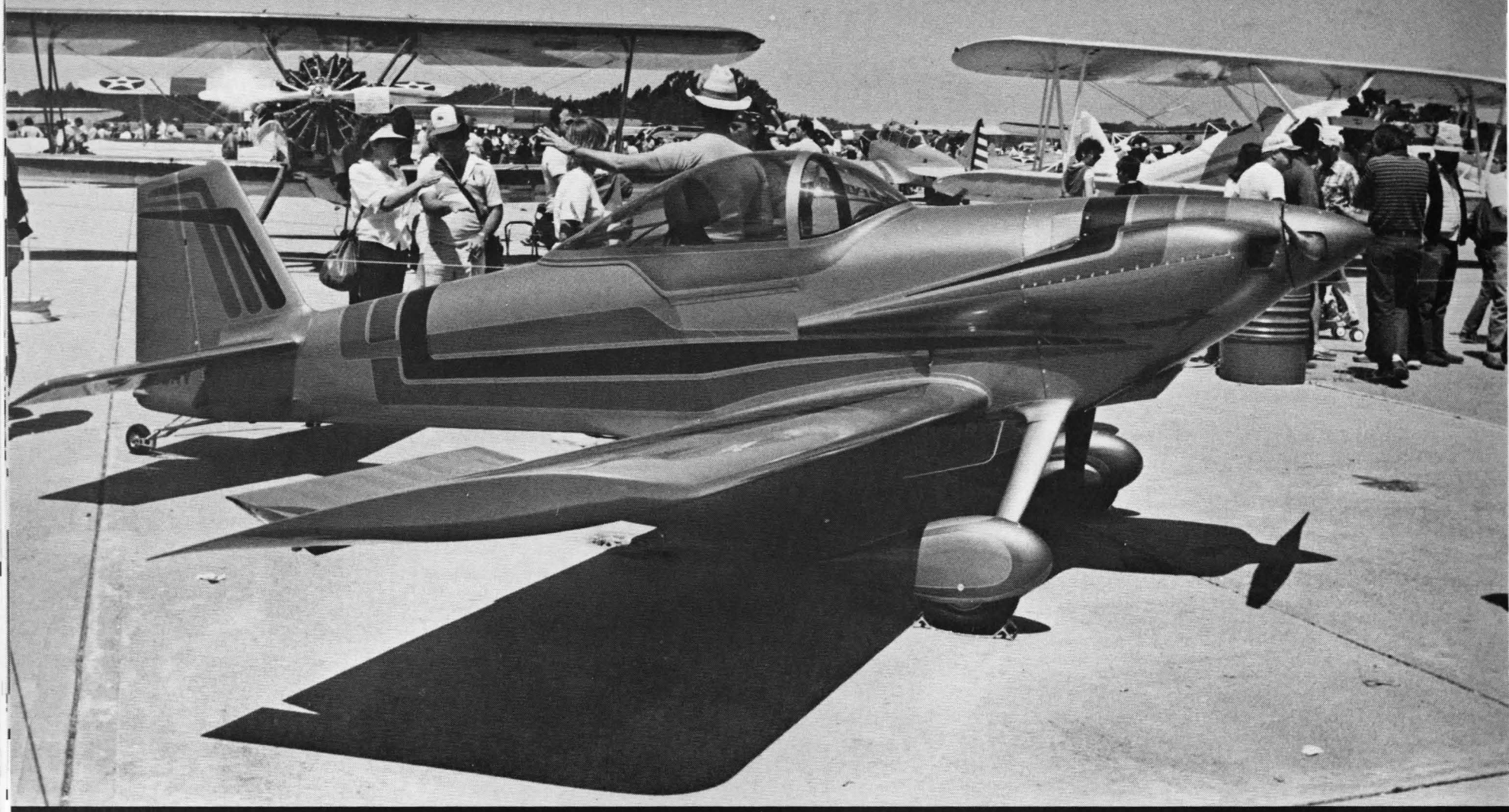
All the speed and good looks have had their price. Empty weight is now up to 802 pounds.

"I keep adding a little here and there. I had to add an oil cooler, then the tailwheel pant and it all adds up."

The only "problem" experienced with the new engine installation has been a higher than desired oil temperature. Not dangerously high, just higher than desired. The cylinders, on the other hand, are running at only 300 degrees, so Wes figures he can rob a lot of air from them to help lower the oil temperature and still not increase the overall cooling drag of the engine. It's really just a continuing developmental exercise to optimize the new cowling and, no doubt, will have been completed by the time you are reading this.

This nuisance notwithstanding, Wes is extremely pleased with his "new" KR . . . and this was an opinion shared by the judges at Watsonville. It finished a close second to Randy Noyse's T-18 for Grand Champion Homebuilt.





RVs Galore!

Dick VanGrunsvan's RV series of high performance homebuilts is popular everywhere, but particularly so in his backyard on the West Coast. Bakersfield, CA alone has an RV air force large enough to intimidate some of the smaller nations of the Third World.

This was the year for the kit built two-place RV-4's to begin emerging from builder's work shops and we saw our first ones at Merced in early June. These, along with the usual hordes of beautiful RV-3's, gave us the notion to pick an exceptional example of each to feature in this issue. We let the judges pick the RV-3, which turned out to be Clark Pennington's multiple trophy winner and opted for Lee McDaniel's RV-4 ourselves because of some interesting innovations, principally the installation of spoilers.

So, let's have at 'em . . .

Clark Pennington's RV-3

Airplanes, especially homebuilts, are many things to many people. For Clark Pennington, his RV-3 is by his own admission a form of continuing therapeutic release. He loves to fly it, but even more so, he loves to work . .

. . and work . . . and work on it. When we saw it at Watsonville and Merced this year, we thought we were looking at a brand new airplane . . . and in a sense we were.

It turned out we had seen it at Merced last year, but in a completely different paint scheme. It was silver and blue then, but had been completely redone over last winter. This year, it sported a beautiful combination of earth tones — browns, copper and gold, trimmed in orange pin stripes.

Why redo an already beautiful airplane? Well, Clark says he simply enjoys it . . . enjoys the ever increasing challenge of making a good thing even better. He may even do it a third time this winter, he says. He gets his paint free from Sherwin-Williams, but that is only a token of the total investment to date. So far, he has over \$20,000 sunk in an airframe for which the basic materials kit cost only about \$8200. Obviously, he has spent a lot for bells and whistles.

Just as a start on bringing everything into perspective, you have to know Clark and his family have over 4,000 hours of labor in the RV-3 . . . which must have Dick VanGrunsvan in a catatonic state, because he prides himself on the relative ease with which his de-

signs can be (and are) built. Clark agrees. The unusually high number of hours expended on his airplane is the result of things like discarding at least half the kit and doing the parts over to a higher level of perfection — and has no bearing on the normal amount of time most builders would need to put an RV-3 in the air.

And then there are things like the tailwheel. At Merced last year, some judge told Clark his tailwheel wasn't up to the level of the rest of the airplane . . . so this year he showed up with the tapered rod spring polished, the springs, chains and entire fork assembly chromed and a polished brass inlay on the steering arm that looked like gold plating!

Polished brass, in fact, abounds. The airplane is used only for day VFR flying, so the housing for the rear light has a shiny brass plug instead of a white lens; many of the instruments have brass mounting rings and various controls have brass knobs, inlays, etc., etc.

The upholstery is mohair and leather, the latter in hand folded diamonds. There are only three craftsmen on the West Coast capable of this form of art, Clark says, and one of them happens to be his best friend. The

back of the headrest has a tooled leather eagle on it, crafted by his son, a 9th grader.

The airplane is, as you must have surmised, a super custom job in the finest tradition of the fabled West Coast custom car builders. You almost expect to see it displayed with mirrors under it and wonder if a pair of mink dice with rhinestone dots hang from the stick!

But, then, Clark destroys all those illusions by telling you the pampered bird is anything but a wrapped-in-cellophane hangar queen. Surprisingly, it had been flown 90 hours between the time of its refurbishment in mid-winter and the Watsonville Fly-In held over the Memorial Day weekend! And, of course, it had been flown down to California for the shows from the Pennington hometown of Kapowsin, Washington (near Tacoma).

A fuel injected Lycoming O-320 (150 hp) from a Decathlon powers the RV-3, turning a 68"x69" Cassidy Pacesetter fixed pitch wooden prop. At 2925 rpm the airspeed needle is pointing at 220 miles per hour, and backed off to 2500 rpm it still indicates 188. Clark flies his approaches at 60 mph indicated and if he stalls it on, he's down to about

48 when the tires chirp. Now, if any of you are not familiar with the RV-3, you may be raising an eyebrow at that sort of very high/very low speed range, but that's what they're famous for. Some years ago when EAA conducted the Pazmany Efficiency Contest at Oshkosh each year . . . and which featured timed high and low speed runs over a measured distance . . . Dick VanGrunsven blew every other homebuilt away and left no doubt as to his performance claims.

The "secret" of the RV-3 (and RV-4) is nothing very mysterious — the airplane is simply an exceedingly adroit blending of an honest, old fashioned high lift wing with a very low drag fuselage, landing gear and engine cowling. It's a classic example of that old aeronautical truism, "If it looks good, it must fly good . . . and fast."

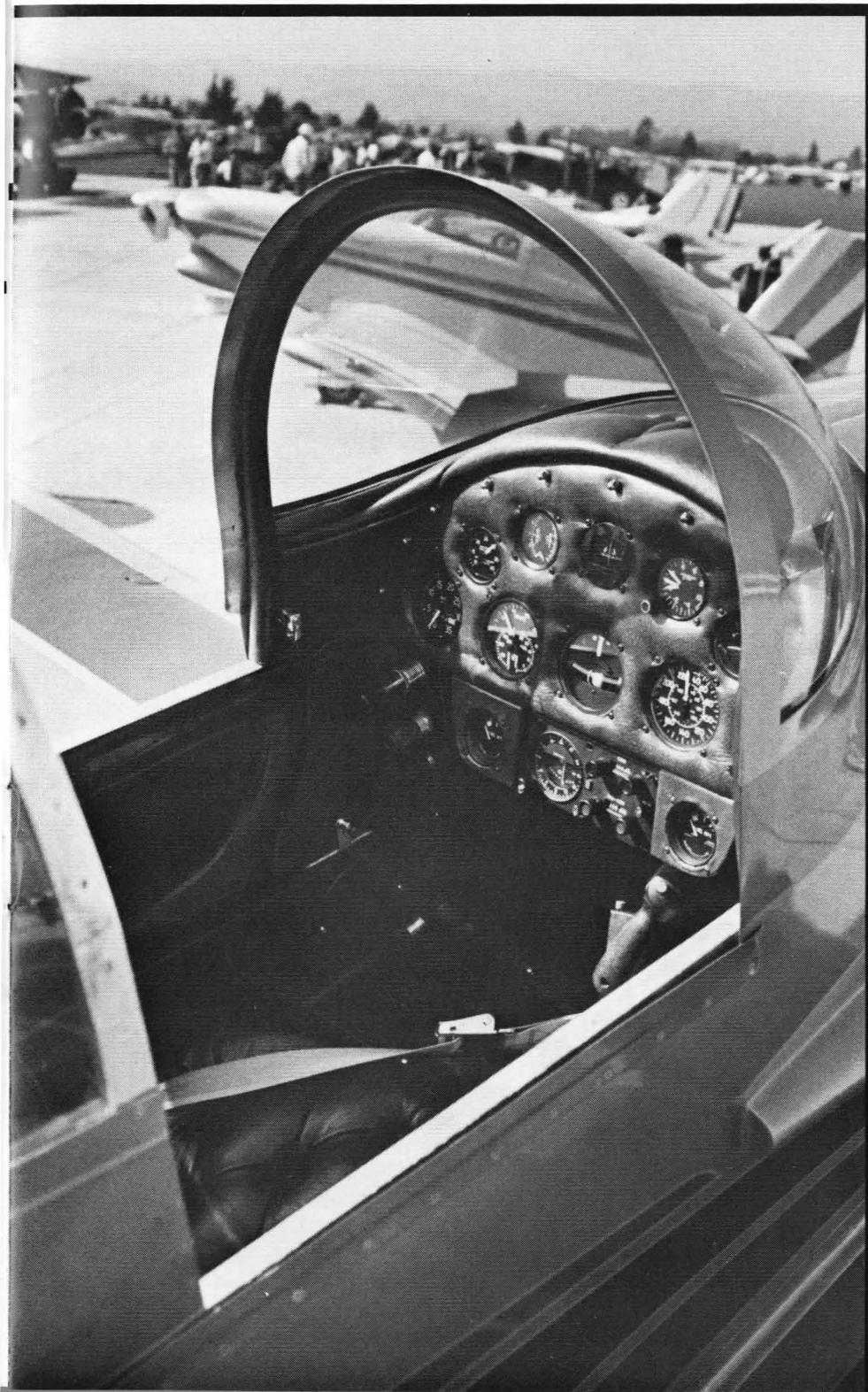
It does fly well, Clark insists. "It's very docile — like a J-3 Cub. It does take some concentration to get it slowed to its flap speed of about 120, but the basic handling is excellent right down to touchdown. It's a real pussycat."

Clark's RV-3 weighed 790 pounds empty the first time around, but following its refurbishment,

rebeautification or whatever you want to call it, which included the installation of a different exhaust system, it now weighs 780 pounds. Best of all, however, it is now 8 to 10 mph faster than it used to be . . . for some reason or reasons.

Clark Pennington is a native of Tacoma, WA and has been flying since he was 17. He earned his commercial license, instrument, helicopter and seaplane ratings years later via the G.I. Bill and plans to add a glider ticket this summer. He has owned a Cub and a Champ, but the Stearman was his first aeronautical love. He finally got one a few years ago — bought it in Tuscaloosa, Alabama and flew it home to Kapowsin. He restored it to fly instead of show and fly it he does — usually about 100 hours a year.

The RV obviously is his showpiece. He and his family have their blood, sweat and tears in every ounce of it and consider it a part of the household. "It's kept me out of bars," he grins, "and it's given my son and me the precious opportunity to do something worthwhile together. I wouldn't sell it for anything. It represents the best \$20,000 I've ever spent."





RVs Galore!

Lee McDaniel's RV-4

Lee McDaniel's RV-4 is one of a kind — not likely to ever be duplicated.

Before putting his plans and kits on the market, Dick VanGrunsvan began a second proof-of-concept prototype to check out all the stuff he intended to sell to homebuilders. The two placer was eagerly awaited by a great number of pilots, none of whom was more anxious to start cutting metal than Lee McDaniel of nearby Philomath, Oregon. It seemed to Dick that Lee was in his shop almost every day checking on his progress, asking questions, taking measurements, etc., etc., so he finally relented and gave Lee the O.K. to start his own RV-4. He was able to provide drawings, information and some weldments like the roll bar and elevator bell cranks, but Lee made the rest himself. Subsequently, Dick put the airplane on the homebuilt market and all the RV-4's built since that time have utilized his kits.

And then there is the matter of Lee's spoilers. A few years ago, Tony Bingelis devoted one of his **Sportplane Builder** columns in EAA's magazine, **Sport Aviation**, to spoilers. In it he speculated as to why the devices seemed to be limited only to gliders and

STOL type aircraft when certain advantages seemed so obvious for clean, high performance jobs. One day, he hoped, his tired old eyes would gaze upon a set of spoilers on one of the homebuilt hot rod types. Well, Lee says, that was challenge enough for him, and he can't wait to meet Tony at Oshkosh and show him the results of his inspiration.

It took Lee 18 months to build his RV-4 and at least 3 of them were consumed designing, building and debugging the spoilers. He has found that with them deployed about 15° — or up about one inch — he gets a thousand feet per minute rate of descent. There is an instant deceleration when they are deployed, much like lowering the gear on a clean airplane. At full deployment there is a pronounced burble that can be felt throughout the airplane.

The operational benefits to be derived from the spoilers are that at half deployment, they provide a good controlled descent and deceleration. Like the single place RV-3, the RV-4 is hard to slow down and the deceleration makes it much quicker and simpler to get down to flap speed. Full deployment is useful in keeping the airplane down after landing — just like jet airliners.

Even so, Lee is not certain he can recom-

mend his spoilers to others. "The RV-4 has such fantastically good low speed capability and handling characteristics that they're not really needed. I went to all that time and trouble to put them on because I simply couldn't believe the airplane would fly as slowly and as good as it does. They might be of more benefit in some of the other fast homebuilts that have a lot higher approach speeds than the RV-4.

"They do function well," he says. "When you retract them, the sink stops instantly and the airplane seems to zoom ahead. There is negligible pitch trim change."

Lee's RV-4 is powered by an IO-320 B1A (160 hp) out of a Twin Comanche. It has a Christen inverted system and swings the recommended 68"x66" Cassidy Pacesetter 200.

Being a pacesetter himself in the construction of an RV-4, Lee gave in to the temptation to build in a few ideas of his own in addition to the spoilers. He installed nav and landing lights, which presented few problems, but he also moved the front seat back a bit, which produced a bunch. Right away, he found it bumped against the rear stick and like tipping the first of a stack of dominos, he had to work through a whole chain reaction of changes

to make everything fit and function as it was intended to. Definitely not recommended, he says.

He also made his own spinner but, luckily, that worked out O.K.

Lee's RV-4 is "probably the heaviest one yet built" at 974 pounds empty. "The inverted system, the lights and spoilers, plus the fact that I painted **everything**, inside and out, all added up. (VanGrunsvan's specs call out empty weight at 890 pounds.) I pay a little penalty in rate of climb, but I still like the night flying and inverted capability."

Lee had flown off his FAA test time and been signed off just in time to fly south to California to attend the Merced Fly-In. He had logged just over 30 hours when he landed there. The Feds originally assigned him 40 hours in a 25 mile circle, but when no problems had cropped up after 27.4 hours, they turned him loose. One thing that helped his case was a lot of very carefully documented test flying — including all his temperatures and pressures, the fact that he had spun it both ways and had conducted dive tests to 230 mph to check for flutter, etc. Lee also received a Repairman's Certificate at the time his aircraft was signed off.

On most of our trips to the West Coast, we seem to keep bumping into midwesterners and East Coast natives who still believe Horace Greeley gave sound advice. This time, however, most of the pilots we interviewed were honest-to-gosh **natives** of California, Oregon and Washington. Lee was one of them — has lived his whole life in Oregon, in fact.

He learned to fly in 1967, soloing a Cherokee 140. Shortly thereafter he checked out in a Super Cub and has only rarely set foot in a nose dragger since. He's flown a Maule a lot and used to own a 150 horse Luscombe 8F. The RV-4 was his first homebuilt project, but Lee had previously restored a number of airplanes, including a T-Craft, a 1940 Model B Funk (which he still flies) and he converted a Tri-Pacer to a Pacer. In fact, during the 18 months it took to build the RV-4, he took time out to recover and paint a Tri-Pacer . . . as well as building some commercial fishing gear and taking some vacations. He thinks he could build a -4 in less than a year if he really worked at it . . . and used all the kits that are available now.

That estimate would also have to include the invaluable assistance of his wife, Jan, he

says with obvious sincerity. She stood behind him all the way with moral support, but more importantly, pitched right in and helped with the rivet gun and bucking bar. She did all the really tough jobs, Lee says, particularly in driving the rivets that were in places too small for his hands. "There are just 5 blind rivets in each wing, as a result of her help."

"If you finish an airplane and are still married, you know you have a hell of a good wife!" is Lee's succinct evaluation of Jan's contribution to his airplane building endeavors.

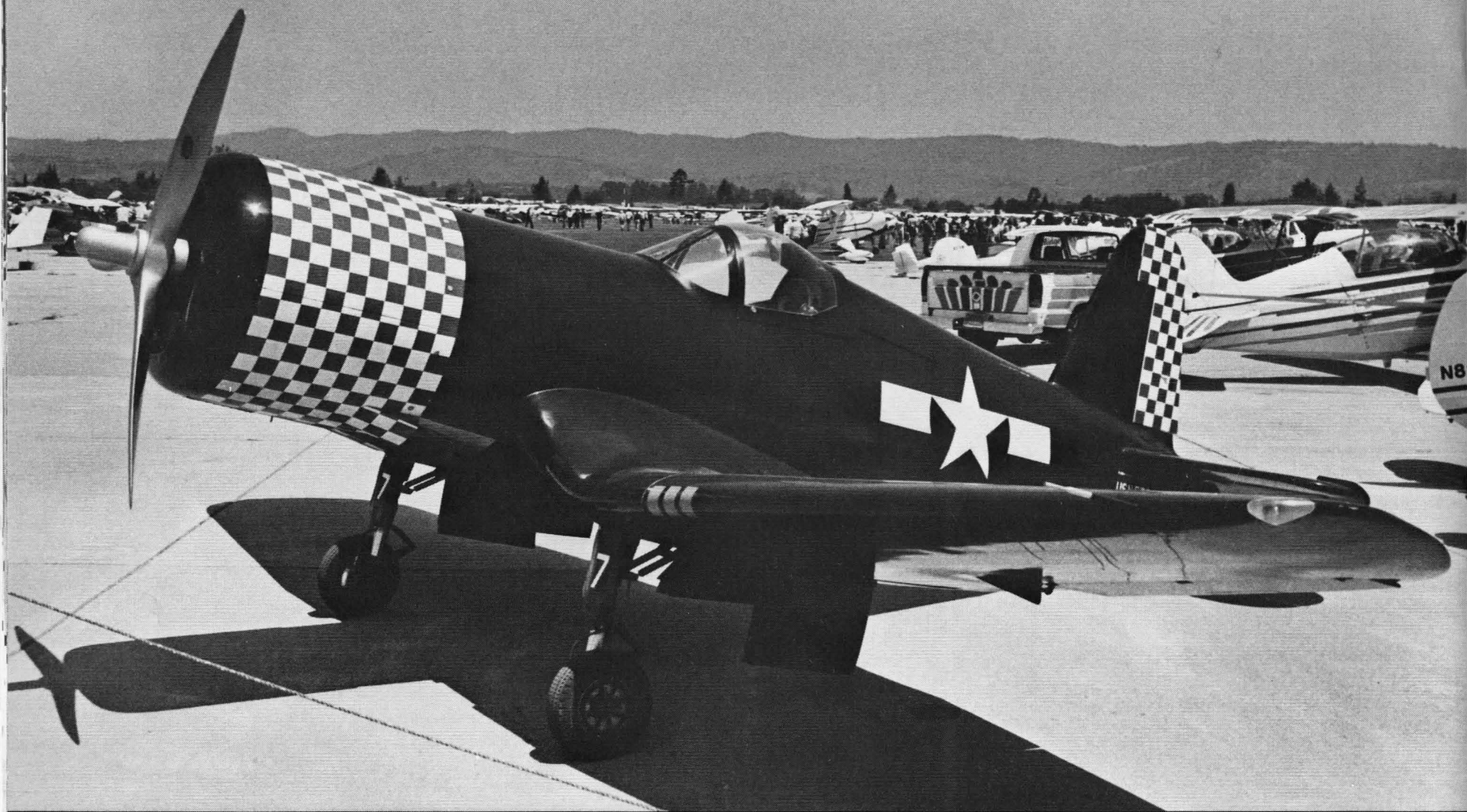
He is just about as high on the RV-4. Actually, I find he is merely typical of both RV-3 and RV-4 builders I have encountered over the years. I've never met one yet who didn't think he had the world's finest airplane.

"A builder is always prejudiced about the design he has built," Lee maintains, "but I only say this to those who doubt the capabilities of this airplane — fly one! It may sound a little boastful to others, but the favorite expression among us RV builders is that we are ready to take on anything that doesn't burn kerosene!"

'Nuff said.



Bill Coffee's



"What's an ex-Air Force fighter jock doin' flying around in Navy blue?" I wanted to know of Bill Coffee as we stood admiring his little half scale Corsair during this year's Watsonville Fly-In.

"It's a long story," he chuckled — which was the wrong thing to say to someone with a tape recorder in his hand! Long stories were precisely what I had traveled across the USA to hear . . . and record for all of you.

Anyway, Bill went on to relate to me that, indeed, he had been an Air Force fighter pilot during the late 40's and early 50's, during the transition from props to jets. He progressed through the usual basic trainers of the day, the T-6 and got to fly the P-51 for a time. He even got in a few hours in a P-38, but says he hated the Forked Tailed Devil. He didn't elaborate on that.

During the Korean War, Bill flew F-80's in a photo recon squadron and went on to fly F-84's and the F-86. He ended his military career with 2 years of test flying at Edwards AFB, then decided to hang 'em up . . . which he did for 22 years.

An aeronautical engineer, Bill worked for a time with Rocketdyne in Canoga Park, CA, but switched to Lockheed in 1959 and has

been with them ever since. Today, he works at the company's Sunnyvale, CA facility, serving as Director of Operations for the Ocean Systems Division.

In the early 70's, the old flyin' bug began to gnaw away at Bill, and when the W.A.R. half scale replicas came onto the homebuilt scene, whatever resistance he had left vanished like smoke rings.

He had to have one of those lil' rascals!

The year W.A.R. showed up at Oshkosh with their tiny Fw. 190, they had literature that told of ambitious plans to produce kits for half scale replicas of almost every radial engined fighter produced during World War II. Bill looked over the drawings and decided he wasn't entirely pleased with all that he saw. To his discerning eye, the replicas with bubble canopies just didn't look right. The compromises necessary to accommodate full scale pilots in half scale airplanes resulted in some awkward lines, he thought. Fortunately, the razorback jobs looked much better, so he began considering one of them. Contact with W.A.R. personnel revealed that of that group, the Corsair kit was closest to being available — so, his Air Force background notwithstanding, he chose the

bent winged wonder that would gobble up his spare time for the next 6 years. This was in 1974.

Now, it would be nice to tell you that Bill breezed right through the building process, having a great time butchering spruce and sculpting foam . . . but, unfortunately, it didn't work out that way. To begin with, the three partners who founded W.A.R. Replicas soon split up, and for the one who remained, there were some tough years ahead trying to get out all the promised drawings and parts. The builders, of course, suffered right along with him.

Once a few drawings or parts did arrive, the airframe, itself, went together rather easily. All the W.A.R. designs were based on a simple, all-wood primary structure very similar to the KR-1 that Ken Rand had introduced just a couple of years previously — and like the KR-1, the W.A.R. replicas were fleshed out to their final shape with foam and epoxy impregnated Dynel (later fiberglass). With essentially one common wood "skeleton" all manner of mini warbirds could be whipped out . . . or, at least that was the plan.

The foam hit the fan when Bill began making things like the landing gear. The W.A.R.

CORSAIR

replicas were enormously popular in their early years and a number of parts and components quickly came to market from a variety of machine shops and supply houses, but Bill chose to build as much of his airplane as he could, including his landing gear. He built it exactly as per plans, installed it in the airplane . . . and only then found it simply did not work. The passage of time has healed his wounds, but even today one can detect a little edge in Bill's voice when he recalls this phase of his project. The end result was a lot of time lost redesigning the majority of the retraction mechanism and part of the struts, making the necessary new parts, installing and debugging them. It all worked out in time and today his gear works nicely, but he will always begrudge that lost year or so of flying he can never retrieve.

Today, Bill says, W.A.R.'s drawings have pretty well been sorted out so that new builders will not have to relive his experiences.

His Corsair is powered by a Continental O-200 (100 hp) and a degree of scaled authenticity is obtained by the use of a 3-blade Ole Fahlin propeller. It is 64 inches in diameter and the blades have a 56 inch pitch.

Polyurethane foam and two layers of fiberglass were used to create the Corsair illusion over his wood frame. The canopy and windshield were made by Gee Bee. They fit like a charm, Bill says, and are very good, optically.

Fifteen gallons of fuel are carried in a fuselage tank ahead of the instrument panel, about 13 of which Bill trusts as useable. This is good for about two to two and a quarter hours of flying, which is perfectly adequate for the sort of local fun flying Bill does most of the time. It would mean a lot of hippity-hopping on cross country flights, however, so he built hard points into the wing in the form of pylons from which he can suspend scaled down 500 pound bombs. One of these is plumbed to serve as an aux fuel tank, holding 5 gallons of gasoline. This provides a welcomed extra hour of endurance.

The other "bomb" is a baggage compartment. There's not enough extra room inside the cockpit for a full size toothbrush, Bill claims, so the extra space is an absolute necessity if he intends to overnight at some distant fly-in.

He flew the Corsair for the first time in 1980

and had logged a total of 165 hours in it when he touched down at Watsonville in late May.

"It flies like a little dream. It's a sensitive little airplane — just **think** about what you want to do and it's already done it for you! Cruises at 145 mph — and I bring it over the fence at about 80. It's a typical taildragger — you have to stay with it all the time.

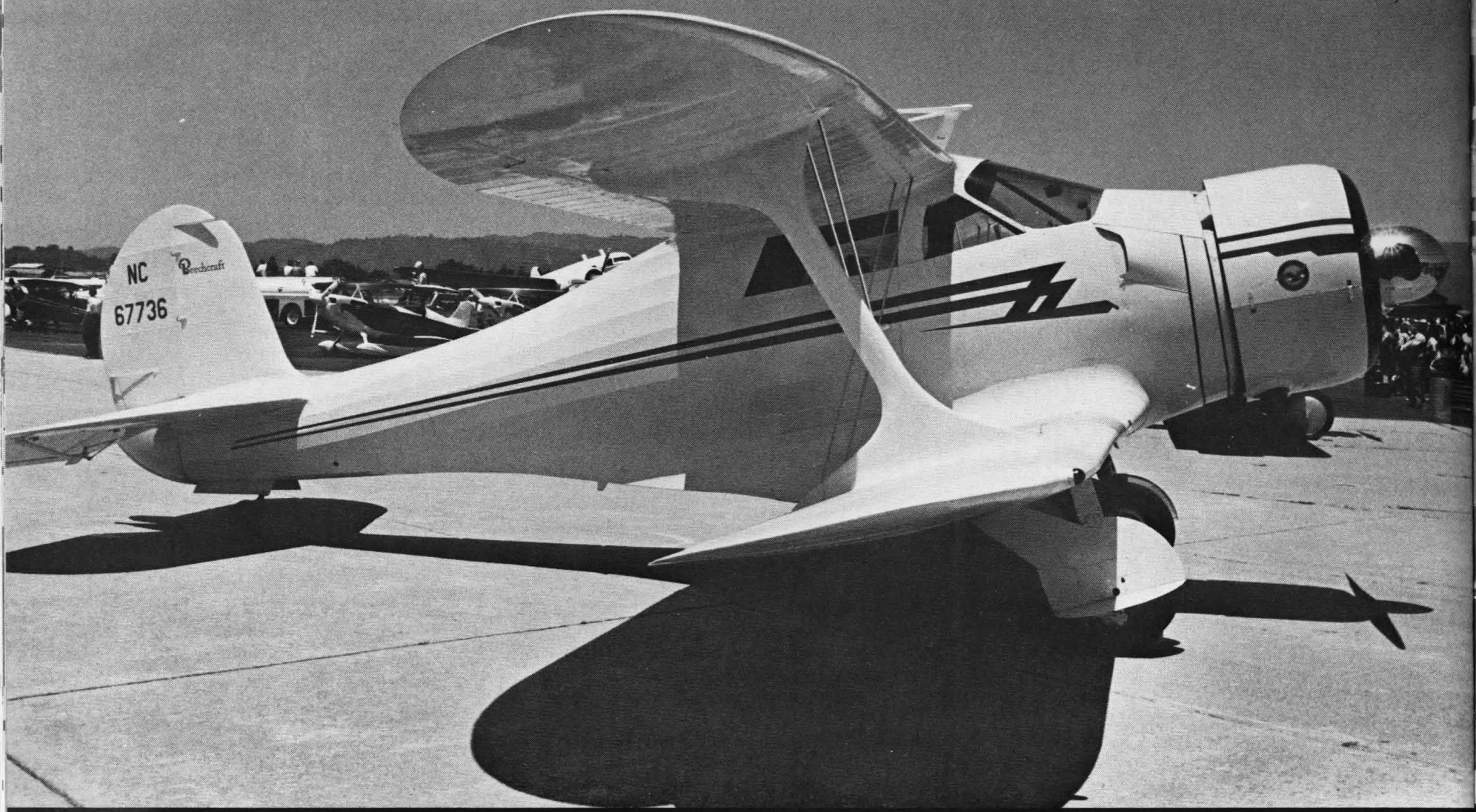
"It has a 2-axis electric trim — on the elevators and ailerons. The rudder trim is ground adjustable. If there's any effort to flying this airplane, it's winding the gear up and down — it has a hand crank mechanism and you've got to sit there and crank it for 52 turns! It comes on up, though, and the tail wheel is linked to the main gear, so that everything goes up together — cleans up pretty as a picture."

Bill loves flying his little Corsair and is justifiably proud of it . . . but he isn't finished with building. He has taken a set of W.A.R. P-47 plans and modified them to the shape of an A6M-2 Model 21 Zero. He has the airframe about a third of the way along and thinks he will have it flying in a couple of years.

That should be something to see! ☺



Bill Spriggs' **STAGGERWING**



When he was 10 years old, Bill Spriggs built a model of a Staggerwing . . . and he's never been able to get it out of his system to this day. It has remained his favorite airplane for the 40 years that have since gone by, even though he has owned a Mooney, 3 Bonanzas, a Twin Bonanza and, currently, a Duke.

At long last, though, he doesn't have to try to rid himself of his obsession — finally, he owns one.

A resident of Santa Paula, CA, Bill spent years watching Ralph Dickenson, the man who started the famed Santa Paula Airport, roaring out of the little river bank strip in his Staggerwing. It seemed he had owned the airplane forever — and he almost had. It had been built in 1943 as a Navy GB-1 and Ralph picked it up for a song in 1945 when the government declared it surplus to its needs. He loved the big brute and flew it all over the place, from cow pastures to the largest airports . . . loved it so much, in fact, that when Bill finally approached him about buying it, he was pretty brusque in his refusal. Bill never gave up on the Staggerwing, but Ralph would never talk to him about it again.

Never, that is, until one morning in 1979. Bill's phone rang and it was Ralph on the other end.

"I'm going to sell my Staggerwing by noon today," he said, "and if you still want it, you'd better get right on over here."

It's a good thing no one was standing between Bill and the door, because he was out of it in a flash . . . and before the high

noon deadline, he was the extremely proud owner of NC67736.

The deal the two made involved a trade, actually. Ralph, it seems, had decided he needed a Cessna 180 — so Bill bought one and traded it for the Beech. The day the planes switched hands, Ralph agreed to ferry the Staggerwing to nearby Oxnard where it was to be hangared temporarily. Bill rode in the right seat, and as they took the active for take-off, he rolled up his side window. Ralph promptly reached over and rolled it back down, explaining,

"You've gotta keep it down — it gets so smoky in here you can't see."

He was right, Bill laughs today.

Ralph had owned the airplane for 32 years and it was pretty well near the end of its useful life on its last engine overhaul and cover job. Bill had hoped to fly it for perhaps a year and then restore it. A fabric test indicated even that might be risky, however, so Bill made the decision to start taking it down to bare bones.

He certainly did that . . . every nut, bolt and screw in the airplane came off, along with the things they had held on. All the metal fittings, parts and components, including the tubular fuselage and the landing gear were cleaned, sand blasted and primed and painted, or plated when appropriate.

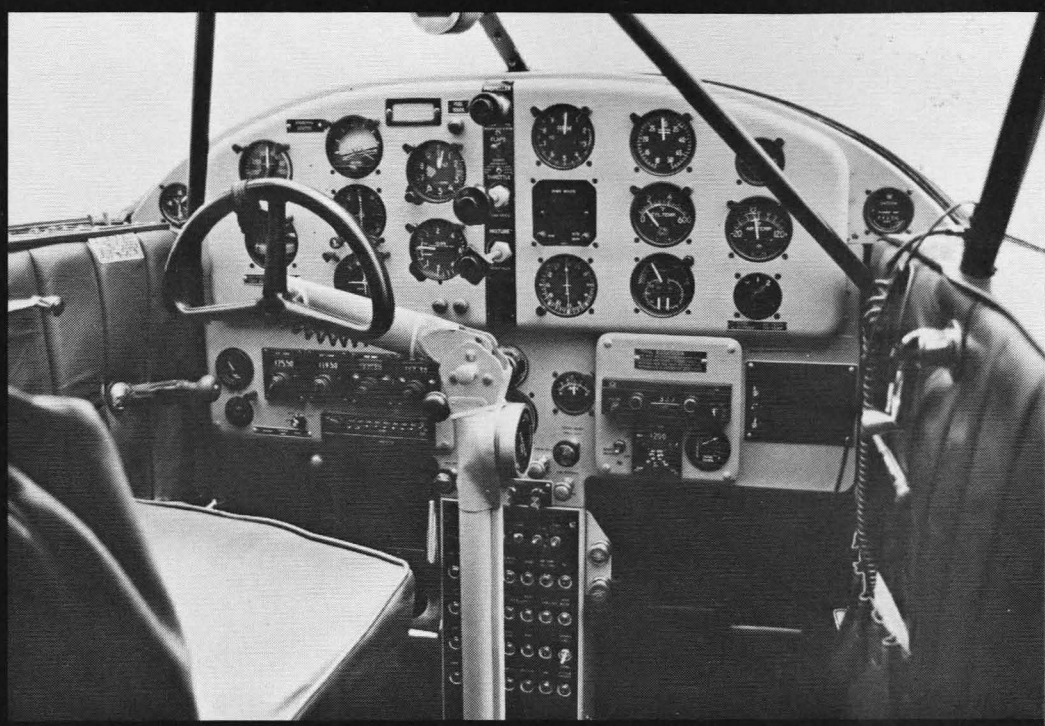
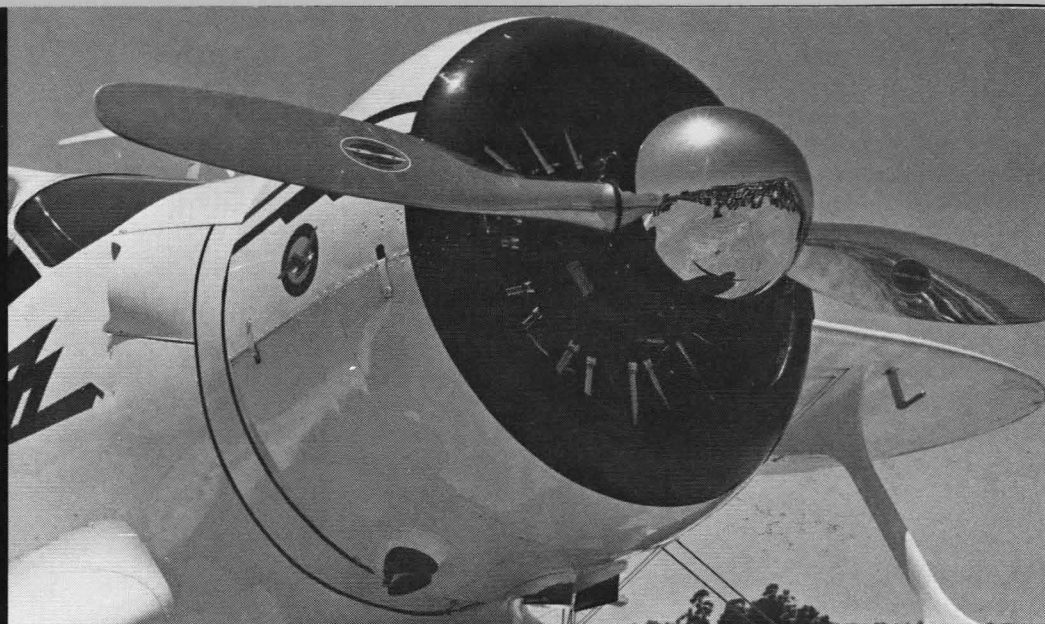
The wood in the wings and tail surfaces was good enough to be retained after some minor repairs. New metal leading edges were installed and, finally, the wings were ready for cover. Bill struggled manfully through both

top wings and one of the lower panels, but one day he stopped, sat down and took stock of his situation. He is a successful land developer, specializing in commercial and industrial complexes in booming Ventura County, up the coast from Los Angeles. It's a demanding profession, timewise, and that fact was already beginning to show on the Staggerwing restoration. He had been at it for two and a half years and all he had to show for his efforts were three freshly covered wing panels and what seemed like a zillion boxes of parts and pieces. At this rate, he had to admit to himself, it would take forever to finish. His dream had been to own and **fly** a Staggerwing — not to spend his adult life rebuilding one.

After considerable soul searching, Bill made the decision to seek some professional assistance . . . and he knew just where to get it.

A young man named Steve Pfister had grown up a few blocks from the Santa Paula Airport and had spent every spare moment playing the role of the typical "airport kid" of the 30's. He washed airplanes, swept hangars — whatever he could to earn airplane rides. When he was old enough, the rides became flying lessons and on his 16th birthday, he was soloed in one of actor Cliff Robertson's Tiger Moths.

After he graduated from high school, Steve enrolled at the Northrop Institute in Hawthorne, CA and went through their respected aviation technician course. He emerged with his A&P license and came straight home to



Santa Paula and went to work in a general aviation shop on the airport.

Santa Paula is legendary for its antique airplane fleet and constant exposure to them had rubbed off on Steve. He recognized that restoration of the old birds was what he wanted to do, but he needed some sort of break to get into the game. Ironically, it came when the San Diego Aerospace Museum burned. He accepted an opportunity to accompany Jim Dewey south and spent the next year and a half helping build the replica of the Spirit of St. Louis that graces the museum's entrance today.

Returning to Santa Paula, he got the opportunity to help complete Ted Homan's Travel Air 3000 . . . and as it rolled out of the hangar door, the chance to complete Bill Spriggs' Staggerwing walked in.

Talk about good timing!

Anyway, Steve began working full time on the Staggerwing a year and a half ago . . . and had it flying in time to attend this year's Watsonville Fly-In.

Every piece of wood in the fuselage — formers, stringers, door and window frames, etc., were replaced with new wood. The old wiring was removed and the electrical system was upgraded from 12 to 24 volts. 12 volts had always been marginal in Staggerwings with their electrically operated landing gear and flaps, so the added power was sorely needed. As a part of this switch, the old generator was replaced with a modern 50 amp alternator, a Sigtronics unit approved for use on the P&W R-985's on Ag Cats. A

starter approved for Twin Beeches was also installed . . . and Steve spent literally weeks getting the paperwork approved by FAA.

Another upgrade involved brakes. Staggerwing Club member Steve Parker has a STC to permit the installation of Cleveland wheels and triple puck brakes on the Staggerwing. The kit was purchased, bolted in and has worked well from the start. Steve highly recommends it to other Staggerwing owners.

Another thing he recommends is the engine overhaul work of Johnson Air Service of Tulare, CA. They breathed new life into the Staggerwing's P&W R-985 and it runs beautifully, according to Steve.

Steve, himself, had professional help when it came to the airplane's interior. Bill's wife is an interior decorator, so she was pressed into service to select the upholstery. She spent untold hours, Steve says, matching the headliner, side panels and seat covering material to the exterior colors, a light cream with dark red trim. The seats are done in red leather, set off by matching red carpet.

The original instrument panel was retained, with a few modern instruments and, of course, modern radios were installed. Painted light gray, it looks "too modern" to many, but is the same one Ralph Dickenson flew behind for all those years.

The Staggerwing was covered with Stits fabric and finishes, the color coat a "wet look" polyurethane. The Model 17 Beechcraft was a very expensive airplane when new and the civilian models usually sported shiny hand

rubbed finishes, so the "look", at least, is authentic. If Beech had had polyurethane paint in the 30's, there probably would be fewer arthritic company retirees around today!

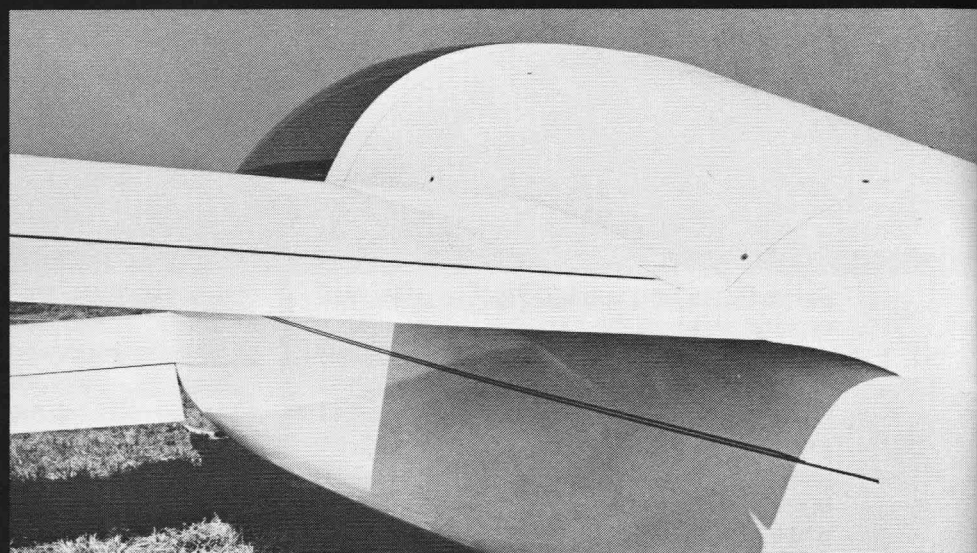
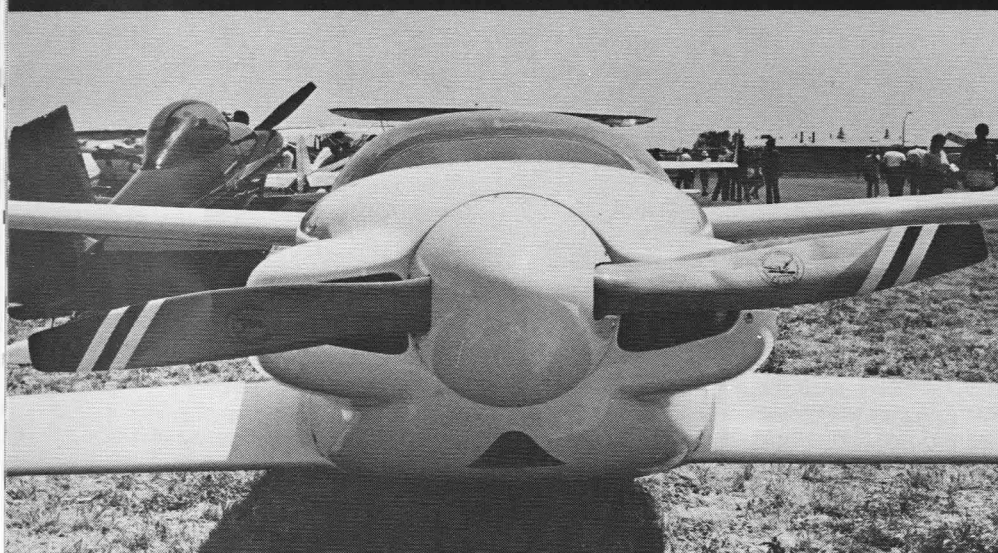
As so often is the case, the restoration of NC67736 came right down to the wire. Watsonville '83 had been the goal . . . and the airplane was flown on the Thursday before the fly-in began the next afternoon! All went well, fortunately, and 4 hours were put on the bird that afternoon. On Friday, Steve pointed its nose northward, climbed out over the mountains and headed for Watsonville.

During the weekend, the Staggerwing was flown in the antique fly-bys that are a tradition at Watsonville and was much admired by one and all. Then on Sunday night at the awards banquet, Bill was called forward to receive the Mayor's Trophy, the runner-up position for the entire showplane field. For the first time, Steve's timing had proven to be just one click off — they had the luck to come up against Ted Hendrickson's equally beautiful, but far more rare Monocoupe 110, so lost out on Grand Champion. There was certainly no dishonor in finishing second to Ted, however. Behind **them** was a record field of really superb antique restorations, and the round of applause their Mayor's Trophy win received was truly deserved.

Besides, the Staggerwing had already fulfilled its primary mission — a ten year old boy's dream had been realized.



The Nichols' Dragonfly



Rex Taylor of Viking Aircraft had been raving about a West Coast Dragonfly for months and, finally, at Watsonville we had the opportunity to see it and talk to its builders, Terry and Joan Nichols of Ventura, CA.

Rex was right, it was a beauty. The finish was superb and free of the waviness that is a sure fire tip-off in composite aircraft of a less than all out effort by the builder. The airplane was built in 20 months, Terry told me, working an average of 4 hours per night, right through the weekends and a couple of two week vacations. It was completed and test flown last November.

This was the Nichols' first homebuilt project and first experience with composite materials and construction methods. Bob Walters' widely heralded building and, particularly, finishing instructions were followed faithfully from beginning to end. Terry joins a host of builders of all types of composite aircraft who have told me Bob Walters' article on finishing published a couple of years ago in *EAA's Sport Aviation* is the best ever written.

I asked if there were any problem areas in

building a Dragonfly or, at least, any particular part or component that was significantly more difficult than any other. Terry said he found the building instructions supplied him to be completely adequate, to the extent that no insurmountable problems surfaced during the construction of his Dragonfly. He did concede that while not overly difficult, the canard did involve more work than the other major parts of the airframe. The only argument he might have with the instructions, he said, was in the estimated building times they suggested. The exterior finish was to have taken 10 days, according to the plans, but it took him 4 months!

The Nichols' Dragonfly is powered by a HAPI 1835cc VW conversion, fitted with a Tillotson float-type carb. A 52"x42" prop by Great American is used. The airplane indicates 150 mph at 3200 rpm, burning about 2.5 gallons per hour. Able to fly that cheaply, Terry and Joan have had their Dragonfly's wings abuzz (I've been waiting a long time to get to use that pun!) since its first flight — 95 hours in its first 6 months of existence.

Terry had 300 hours of flying time when he test flew his Dragonfly, all in a Cessna 150 and a Cub. During the 20 months the airplane was under construction, he managed only 8 hours of Cub time. Still, he had no problems flying the tandem wing design. There is one major diversion from the plans in this Dragonfly — it has heel brakes rather than the hand brake strongly recommended by Bob Walters and Rex Taylor. Terry has had no problems with them and misses only the parking brake function the hand brake would have provided.

Empty weight came out at 700 pounds — it also has 2 batteries and strobe lights — and gross is pegged at 1075 pounds.

Terry is very happy with the airplane . . . so much so that he wants to build another one using the Task Research pre-molded fuselage that will be available soon. An oil field worker, Terry and his wife Joan live in Ventura, CA and base the Dragonfly at nearby Camarillo.





Sportsman Pilot

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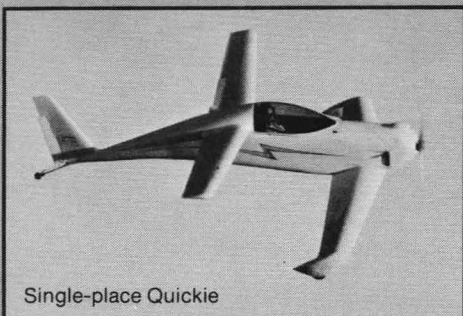
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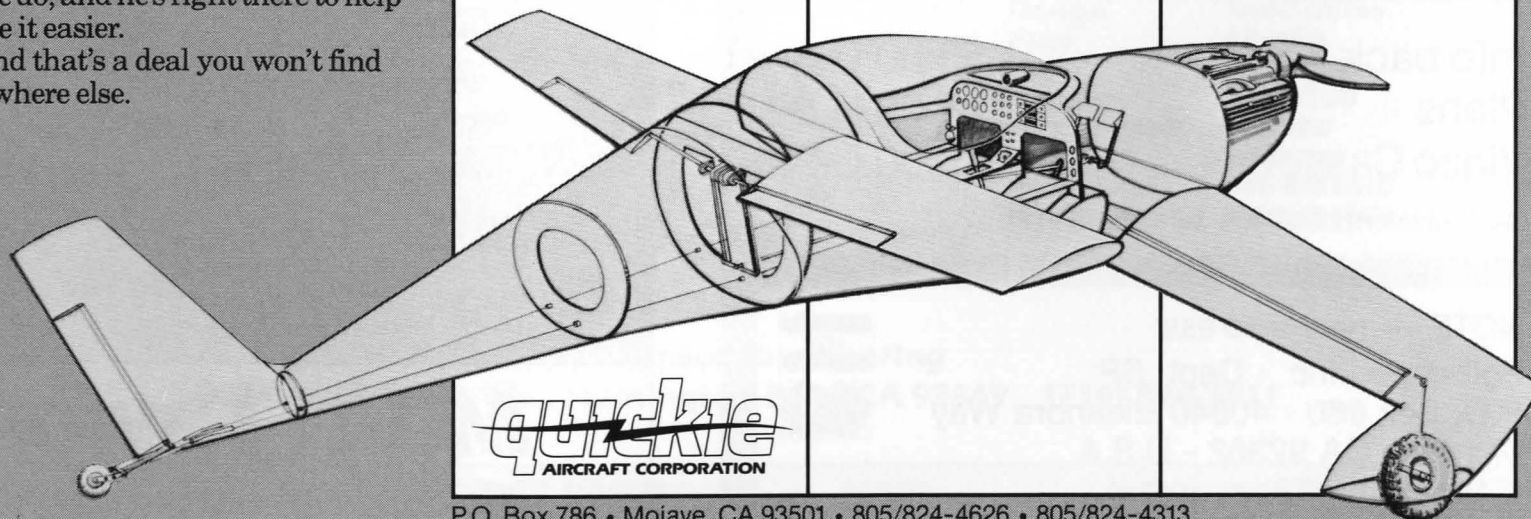
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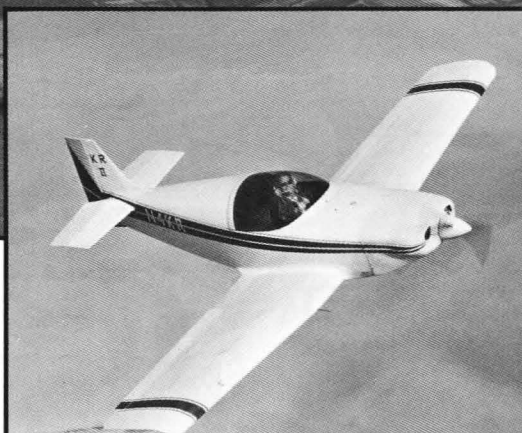
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KR2 SPECIFICATIONS

Top speed	200 mph
Cruise	180 mph
Range	1600 miles
Fuel	12-35g @3.8gph
Engine	VW 2100
Useful load	420 lbs
Seats	2 across
Gear	retractable
Wings	detachable

Rand/Robinson Engineering

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KR1

KR1-B MOTORGLIDER

KR2

KR3 AMPHIBIAN

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Maximum Roll Rate	150°/sec +
Empty Weight	238 lb
Maximum Payload (Pilot & Chute)	220 lb

* The Rally Sport is designed to withstand flight manual approved aerobatic maneuvers. It is strongly recommended that the pilot have at least 5 hours of aerobatic flight time in a certified aircraft prior to attempting aerobatics in the Rally Sport.

* Rally Sport is the only Rally designed for approved aerobatic maneuvers. Unauthorized aerobatic maneuvers in Rotec's Rally 2B or Rally 3 can result in structural overload.



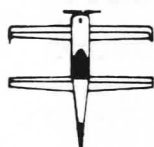
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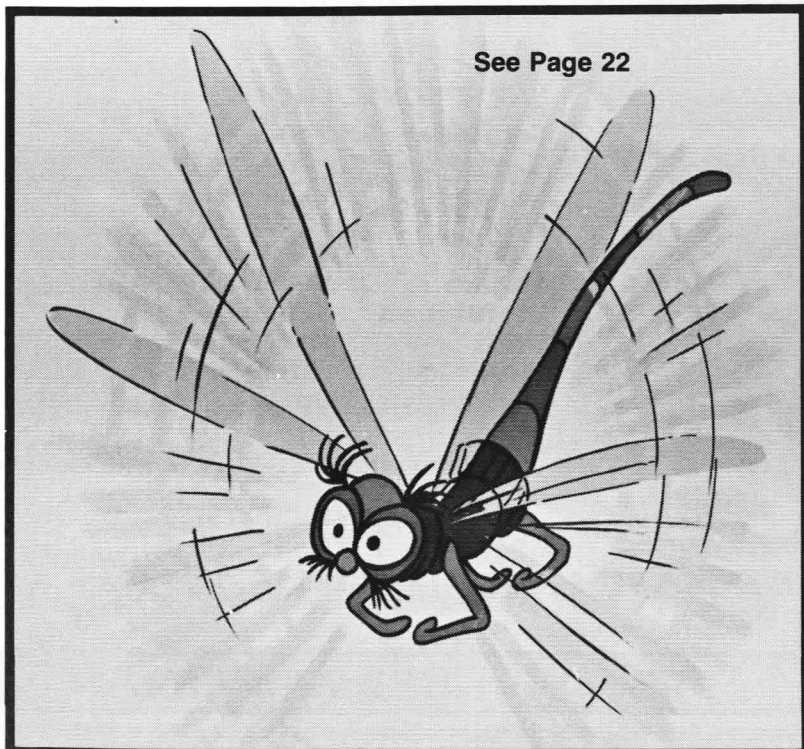
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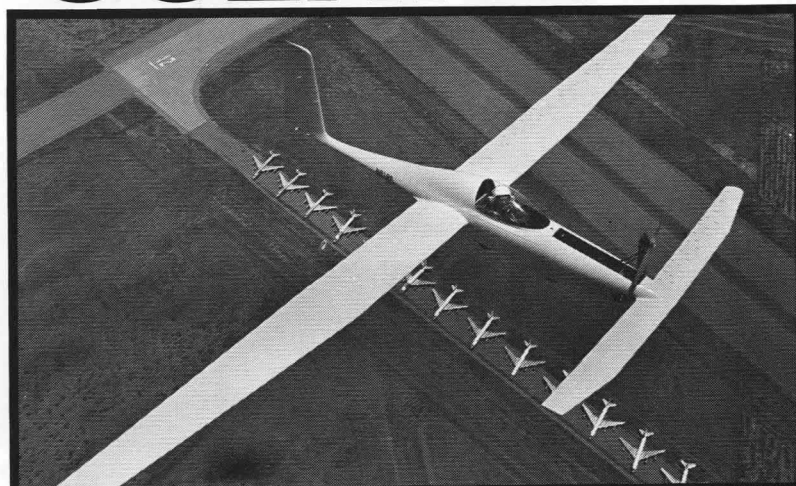
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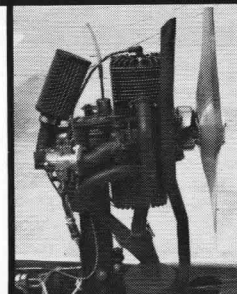
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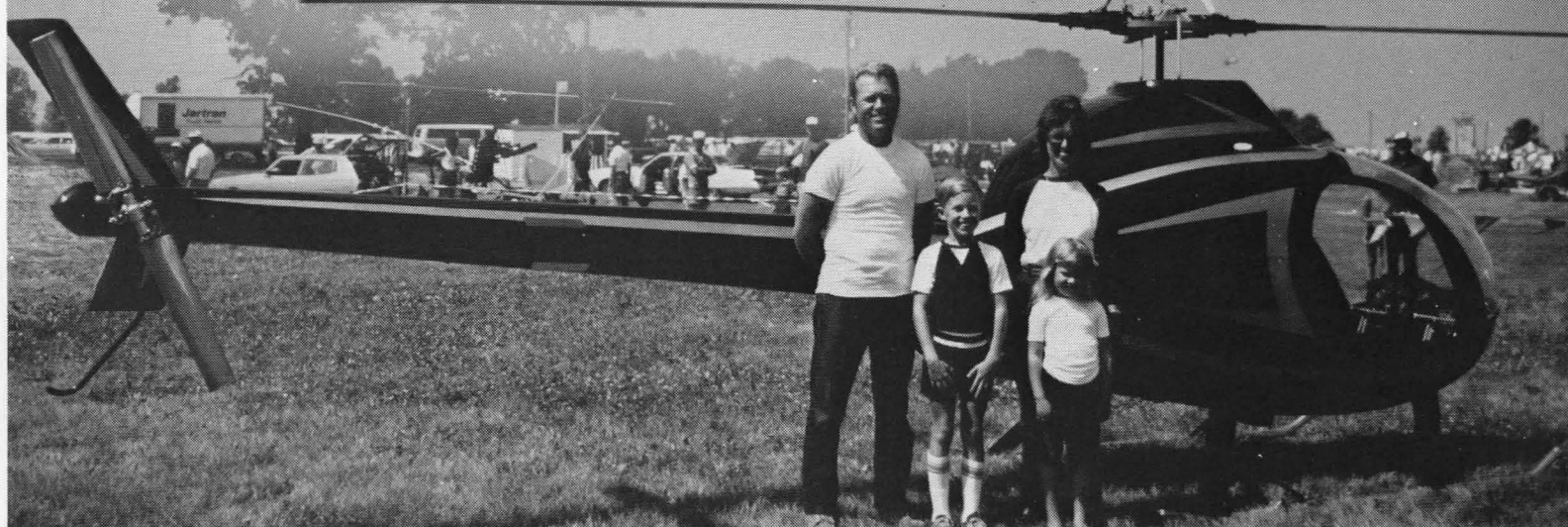


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When you think about family hobbies and fun, you probably think of picnics, trips to the zoo, boating, camping and the like. But Homer and Sharon Bell prefer the practicality and excitement of a helicopter, and do the kids ever love it! What Homer likes most of all is that his **RotorWay Exec** cost him less than an R.V. or a Cabin Cruiser.

Like most men, Homer was always fascinated with flying machines. He recalls that as a boy his favorite television program was the series "Whirly Birds." From that TV program on, helicopters remained in the back of his mind.

Homer looked at all the small helicopters around and after checking into the cost of buying and maintaining one, he realized he simply couldn't afford a conventional commercial product. When he was about ready to throw in the towel, he heard about RotorWay Aircraft and a unique program offering a personally affordable helicopter. So affordable in fact that Homer, a computer troubleshooter, could actually see his dream begin to come true. With raised hopes he sent off for information. He found the helicopter that he had been looking for. First of all it had an incredibly low price, and then performance specifications that met or surpassed the more expensive ships he couldn't afford.

Now that Homer was sold on RotorWay, he knew he had to sell his wife Sharon. After all, what would any sensible woman say to her husband's desire to buy a helicopter? ... Exactly!

Obviously, he said something right because he not only bought his helicopter, but Sharon just couldn't wait to learn to fly it! And fly it she did! When we asked her what

her biggest problem was flying the Exec, she said, "Once I had really learned how to pick it up, I just couldn't set it down!" Seriously, Sharon did have a problem with touch-downs at first, but now that she's completed her Phase I solo training, she's every bit as much in love with the Exec as her husband. Granted, Sharon isn't the only woman flying helicopters, but the fact that she readily adapted to our machine, lends credibility to the fact that you don't have to be a NASA test pilot to fly the Exec.

By the way, Sharon's maiden name was Hughes, her married name is Bell, but she's flying RotorWay helicopters. Naturally, we just love it!

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Sharon soloing the family Exec.

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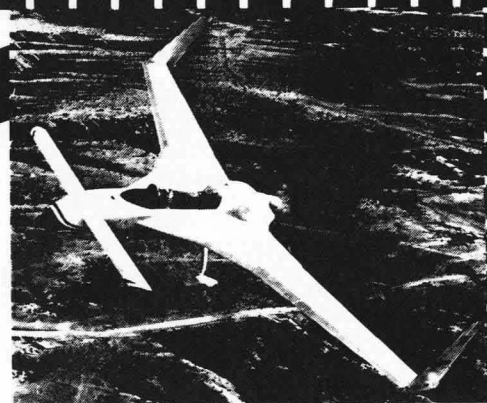
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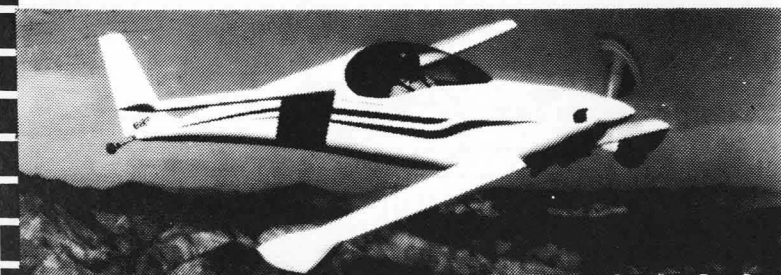
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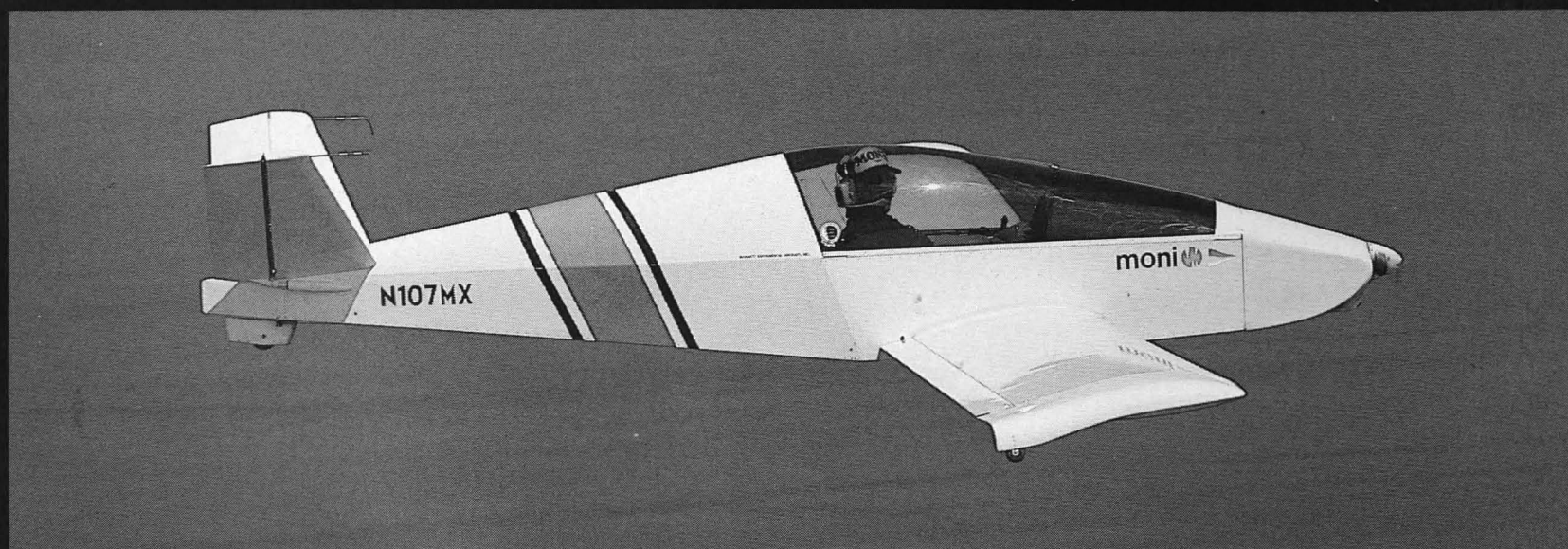


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